

NEW TRAXXAS MAXX! SEE IT HERE

RADIO CONTROL

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Page 33

car action

THE WORLD'S BEST-SELLING RC CAR MAGAZINE

EXPOSED!

TITAN

**OFNA'S
25-POWERED
MONSTER!**

BIG-BLOCK TOURING CAR SHOWDOWN

- KYOSHO LANDMAX 2
- OFNA ULTRA GTP
- SCHUMACHER NITRO BIG 6

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SPEEDMIND Daytona RS

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FOR RACING

OCTOBER 2002

USA \$4.99 Canada \$7.50



VOLUME 17
NUMBER 10
OCTOBER 2002

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ON THE COVER: the OFNA Titan, poised for some rock-climbing action. Photo by Walter Sidas.

If it's RC, it's in here!

We try to pack every issue of *Radio Control Car Action* with a broad spectrum of RC stuff, but this month, we really run the gamut. Nitro and electric, big to small; it's in here. Check out the mix

EXCLUSIVES BIG AND SMALL—BUT STILL BIG

First, the big. In addition to the very first photos of Traxxas' new, wider, more powerful T-Maxx (see "Inside Scoop"), this month is your chance to get an exclusive First Look at the OFNA Titan, the first buggy-based monster truck to be adapted to a lifted chassis. The combination of heavy-duty 1/8-scale hardware and a high-riding chassis (with a .25 engine for power, no less) might make the Titan the best big-block monster yet. And now the small. You've no doubt seen tiny, rudimentary RC micro cars before, but Yokomo's Puchi Maru combines ultra-micro dimensions (it's less than 3 inches long) with full proportional control, as commanded by the included, full-size FM transmitter. It's an RC first.



OFNA TITAN

NITRO AND ELECTRIC—RTR AND KIT

The Track Test mix is a good reflection of the state of RC, which is to say ready-to-run dominate. The latest is Associated's revised RC10GT nitro truck that is reviewed in its new "Plus" trim. A longer Factory Team chassis, full bearings, a new body and an upgraded Jaguar transmitter are the highlights. Megatech is also looking for a slice of the nitro-truck action but is taking a decidedly different path with its Tempest Gladiator. Associated's GT is a low-slung, race-ready 2WD truck; the Gladiator is a 4WD, high-riding, tall-tire monster. Both are factory built, painted and ready to roll, but you'll just have to read the Track Tests to see which best fits you.

But there's more to RTR trucks than nitro power and the civilian world of stadium racers and monster crushers. The Tamiya Humvee XB brings military muscle to RC with a rugged 4WD chassis and clean, quiet battery power—perfect for a vehicle that is, after all, designed to sneak up on people. Why else would they paint it camo?

Let it be known that kits are alive and well, especially if pro touring is what you're into. SpeedMind, with its exciting Daytona, is the latest chassis to challenge the electric elite. We have a full review of this aluminum and graphite exotic; don't miss it.

... AND A SHOOTOUT, TOO.

You could say this is *Radio Control Car Action's* "biggest" comparison test, even though there are just three cars going head to head. We're talking big dimensions here, with the Kyosho LandMax 2, OFNA Ultra GTP and Schumacher Big 6 (that's the big biggie) all vying for the title of most fun .21-powered nitro touring car. They're all fast, impressively large and plenty powerful, so good luck making that pick!

If you're thinking, "That's great, but what about an RC motorcycle?" Well, you got us; but we will review the Thunder Tiger FM1e two-wheeler next month—so there!

See you next month,
Peter Vieira
Executive Editor



YOKOMO PUCHI MARU



KYOSHO LANDMAX 2

Does your club need cash?

Last year, Hitec gave 10 RC clubs \$1,000 each toward improvements of their tracks or flying fields as part of the company's Field and Track Improvement Fund Awards. And Hitec is doing it again this year! Any club or organization can apply for an award.

Send an entry to Hitec with the following verifiable information:

1. Contact name, address and phone number.
2. The same info for two members of the club's board of directors.
3. The club's federal tax ID number.
4. Number of dues-paying club members.
5. The field or track property's ownership or lease status.
6. A short plan of proposed improvements.
7. A brief, emotional, heartfelt statement that explains why your group should be one of the 10 to win \$1,000 from this awards program.

Money will be given as 10, \$1,000 cash awards, and entries must be postmarked before October 31, 2002. Send your entry to Hitec USA Field and Track Fund, 12115 Paine St., Poway, CA 92064.

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RC9043 Micro RS-4 Hauler Bag
Fits car, battery packs and
has tubes to store tires



Mini-Z F1



RC9044 Mini-Z F1 Hauler Bag
Fits car, radio and extra batteries
RC9046 Mini-Z Hauler Bag



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www.teamtrinity.com

TOURING TUTOR

My name is Andrew Nicholson, and I have subscribed to *Radio Control Car Action* magazine for two years. I'm having a problem understanding some of the RC touring-scene terminology. It would be very helpful if someone could email me about the different terms, such as differential, pivot-ball retainers, camber, toe-in, toe-out and swaybars. Also, how does the different oil weight in the shocks affect the car? You're probably thinking that I am an idiot and an embarrassment to RC. I'm truly sorry. I read every magazine about RC cars that I can find. Just before I wrote this email, I was at a bookstore trying to figure out the terms that are puzzling me. Thank you for taking the time to help me.

Andrew Nicholson
Upland, CA

We try to keep *Radio Control Car Action* full of such information each month, but if you need a crash course in touring tuning, I suggest you pick up the 1999 edition of *Radio Control Touring Cars*. Inside, you'll find an article called "How to Dial in Your Sedan"; it covers everything from ride height and toe-in to Ackerman and anti-squat. To order this or any issue of *RC Car Action*, visit rcstore.com, or call (800) 877-5169.

—Pete

DUMB AND DUMBER

Is it OK to store fuel in the refrigerator? I have read in the mag that it is bad for the fuel and will make the nitromethane deteriorate, and that it's best to store it in a cool, dry place in a sealed container. I have kept my fuel in the fridge for a week, and it seems to do fine. [email]

MDFBox

I don't think storing it in the fridge will harm your fuel, but it will definitely harm anyone in your family who mistakes it for a bottle of Powerade or some other blue thirst-quencher. No matter how well you label the bottle, it's risky. When it's 100 degrees outside with 90 percent humidity and I've been riding my bike all afternoon, I'll drink anything that's in the fridge because I'm too dizzy to look at the label. Yesterday, I chugged a jar of pickle juice. I suggest you move your fuel.

—Pete

My friends and I went camping, and we took along our T-Maxxes so we could hit the trails for a day. Later, we wanted to make a fire but realized we forgot to bring any lighter fluid and thought we'd have to drive to a store and get some. Then we remembered that we had nitro. Though not the safest idea, it worked well. We poured 1/4 cup

of nitro into a plastic container and used that to start the fire. We both agreed that there's nothing better than nitro-smoked steaks.

Zach Moss
York, PA

You're lucky you didn't go home with nitro-singed eyebrows. Nitromethane burns with an invisible flame that makes it very dangerous for lighting fires. Please, don't use nitro to fire up anything other than your engine. Couldn't you guys have just rubbed a couple of sticks together?

—Pete

BORN TO RUNNER

I think the latest issue of *Radio Control Touring Cars* is awesome! I especially like the ready-to-run touring-car shootout, since that's the type of car I plan to buy (I'm going to get the Associated TC3). I especially like that you include the top speeds of all the cars. I know the



TC3 will do 21.4mph out of the box, but I plan to make it even faster with a modified motor. Do you know what the motor limit is on the TC3's LRP Runner speed control? [email]

Karl B.

Glad you like *RC Touring Cars*. The Runner is rated for motors with 18 or more turns, and the TC3 RTR includes a 20-turn motor. Keep in mind that the motor-limit recommendations included with any ESC are only guidelines, and even if you use a motor within the prescribed range, it's possible to damage or ruin an ESC if you jam the motor, overgear the car, or otherwise overload the ESC.

—Pete

BATHROOM HUMOR

My son is less than 3 years old, and he is an RC junkie—no joke. When he was about 6 months old, my father-in-law gave me his old Clod Buster, and I drove it around the living room until the batteries dumped. Today, we have a T-Maxx, an Evader and three RadioShack cars for him to learn on, and he can run the Evader and actually stop it (kinda) and steer it; he just doesn't know where he's going. Not bad for a kid who isn't potty trained yet; but from the attached photo, you can see I'm working on that!

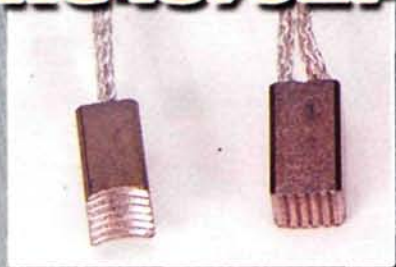
Kevin Filkin
Westminster, CO

Thanks for the photo—I think. If anyone wants a picture of a cute red-haired tyke sitting on the toilet and reading the June issue of *RC Car Action*, I'll email it to you!

—Pete

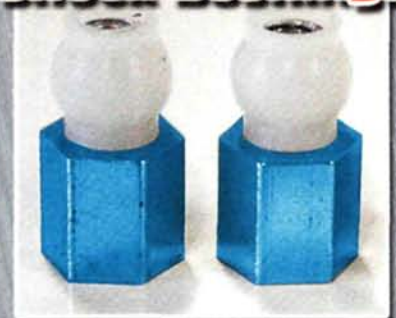
HOTSTUFF

RC4379EP



New high silver content modified brush. Fits all P-94 based modified motors and new SpeedGems Pros. Higher performance than 4380 or 4383 compounds. Dual shunts. RC4379EP, \$4.99. With Terminals RC4379EPNT, \$4.25 No Terminals

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Blue anodized aluminum shock bushings with Delrin balls for the Kyosho MP-7.5 off-road gas buggy. Allows for smoother operation of shocks. 4 pieces, does complete car. RC6096, \$8.99

BATTERY Cooler/Car Stand



Foam car stand and battery cooler with oversized fan. Cools two stick or side by side packs at one time. RC5112, \$15.99



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READERS WRITE

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TRINITY

FIRST NITRO TOURER?

I just got into 1/10 nitro touring and am trying to choose among several kits—from Team Associated, Serpent, Yokomo, etc. I've been seeing various statements, such as "We defined the nitro touring class" and "We've been doing nitro touring since the beginning" I'm curious: who made the first 1/10 nitro touring car, and when? It won't influence my choice; I'm just looking for a little history lesson.

John Bell
Scranton, PA

It depends on how you define "nitro touring car." Kyosho's GP-10 first appeared in the April '94 issue of *RC Car Action* and could be considered the first nitro tourer; it had 4WD, a small-block engine, street tires and a sedan body. But the chassis was borrowed from the Inferno 10, and the car had very wide arms and larger wheels than the electric touring-car standard. Yokomo's YR-10 GP, which first appeared in the January '95 issue, is arguably closer to the modern nitro touring-car standard and is a better fit as the industry's "first" nitro touring car. But it's all debatable!

—Pete

MONSTER RC GARAGE

Have you ever watched that really cool show on the Discovery Channel called "Monster Garage"? It's about a famous hot-rod guy, Jessie James, who, in each episode, assembles a team to build a specific type of "monster" vehicle, such as a limo that can be transformed instantly into a water-powered firefighting car, a VW Beetle that changes into a waterproof swamp boat, or a Mustang that instantly converts to a giant lawnmower.

Here's my great idea: you guys at *RC Car Action* could do a really cool project like that. There are endless possibilities, such as an HPI Nitro MT chassis that has been modified with a touring-car pivot suspension, and a powerful brushless motor that has a propeller at the end to allow the car to move underwater like a submarine! [email]

Marcus Tang

Our "4x4" guy, Kevin Hetmanski, built a monster truck that shot fire ("Project Firepower," April '99), so I guess we could do more stuff like that. Readers: what do you think? Should we build more wacky projects?

—Pete

YOU SAID IT

"RC has enriched my family life"

I've been in the hobby and have read your great mag for 10 years now. Thought I'd drop you a note to tell you how RC has enriched my family life. My 12-year-old son has been joining me at the track for 2 years. We both race 1/8-scale off-road.

The hobby has really helped improve my son's focus and attitude, and it has helped him get over his shyness. Mom even gets involved now with the stuff she likes to do, such as painting and decaling! Working on the cars has become one of our favorite pastimes, and it has really taught my son how things work. I have a lot of respect for him; he always finishes in the top five (usually ahead of me!). Thanks for a great magazine. And keep up the good work!

Vince

Mabelvale, AR

Call me sentimental, but I always enjoy letters like yours, Vince. Looks as though Mom's next painting and decaling project will be a Trinity Reference body!

—Pete

Each month, "Readers Write" sponsor Team Trinity awards a Reference body to the "You said it" letter writer. This is Trinity's new C-Machine touring-car shell.



WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4806 USA. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

- Peter Vieira: peter@airage.com
- George M. Gonzalez: george@airage.com
- Bob Hastings: bobh@airage.com
- Kevin Hetmanski: kevinh@airage.com
- Paul Onorato: paulo@airage.com
- Steve Pond: stevep@airage.com
- Greg Vogel: gregv@airage.com

FAN CLUB

Trinity battery-cooling car stand

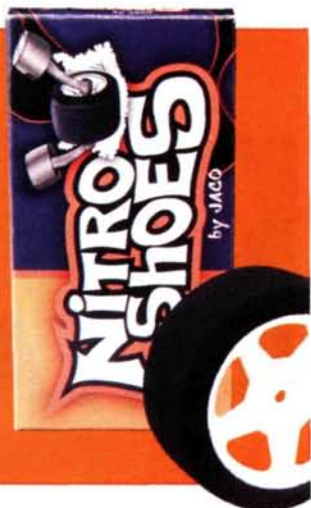
Now that we're dumping 3000mAh packs (and soon, 3300mAh) through 6-turn motors in 5 minutes or less, keeping packs and motors cool is more important than ever. Trinity's hunk o' foam with a fan in it is a good way to keep your gear chilly between rounds. The foam is cut to accept a pair of side-by-side packs, or you can park your car on the stand to cool its onboard gear. The fan runs off your 12V charger, power supply, or battery. Trinity Products (732) 635-1600; teamtrinity.com.



Fuel-power JACO NITRO SHOES foam

Jaco has launched a nitro-specific tire line with its new Nitro Shoes rubber. The tires are mounted on new 30mm 5-spoke wheels that are extra stiff and allow pivot-ball access, and to make sure the rubber stays put, it's glued with CA instead of contact adhesive. Numerous compounds will be offered—all identified by shore rating, which is more accurate than colored dots. As an additional tuning option, you can buy Nitro Shoes on zero-offset or 2-degree-offset wheels.

Jaco Racing Products (540) 298-0446; jacoracing.com.



Carbon-fiber handles give the Kinwald tools a huge cool factor, but they aren't just pretty; drill-blank tips for the hex wrenches and hard-anodized nut-driver bits make them genuine high-precision, high-performance tools. The trick carrying pouch is included. Trinity Products (732) 635-1600; teamtrinity.com.

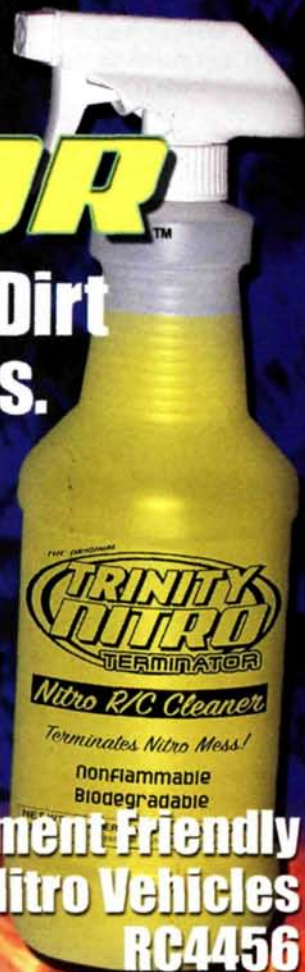
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NITRO TERMINATOR

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& Grime. Safe on Most Plastics.

Non-Flammable!

Bio-Degradable!



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BREAKING NEWS! NEW MAXX REVEALED!

60% more powerful! TRX 2.5 engine



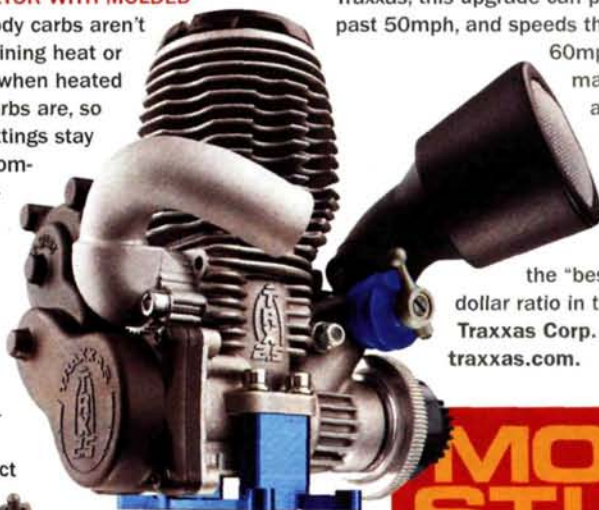
the spraybar against over-tightening.

NOT JUST FOR THE T-MAXX.

In addition to equipping the T-Maxx with the TRX 2.5, Traxxas is upgrading the Nitro Rustler and Nitro 4-Tec to 2.5 power. According to Traxxas, this upgrade can push the Rustler past 50mph, and speeds the 4-Tec up to over

60mph! Traxxas will also make the TRX 2.5 available in a pull-start model with crankshafts to suit all applications, and claims the new mill will offer

the "best horsepower to dollar ratio in the industry!" Traxxas Corp. (888) 872-9972; traxxas.com.



parts is an instant power gainer, and according to Traxxas, the long-stroke design actually reduces friction by applying less side load to the piston as it cycles through the cylinder. The connecting rod is also knife-edged to reduce "windage" and minimize the conrod's effect on the flow of fuel and air through the crankcase.

SLIDE CARBURETOR WITH MOLDED BODY.

Plastic-body carbs aren't as prone to retaining heat or being distorted when heated as aluminum carbs are, so your mixture settings stay put, and the incoming fuel/air mixture stays cooler as it enters the engine. The carb also features an integrated return spring and a stop for the low-speed mixture screw to protect

MORE STUFF

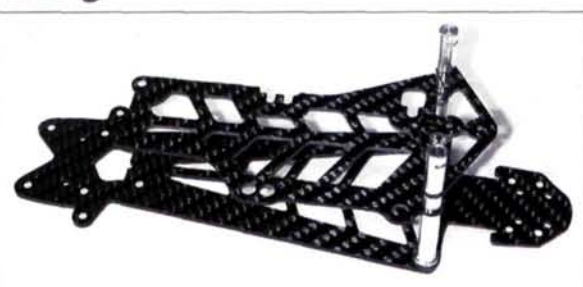
In addition to the new engine and wide-track suspension, the T-Maxx will include:

- ▶ Molded head protector;
- ▶ Larger-diameter drive shafts;
- ▶ Thicker, 3mm aluminum chassis;
- ▶ New 3.5mm turnbuckles;
- ▶ All-new six-color graphics in four color mixes.

Traxxas spent a lot of time bomb-proofing the TRX 2.5's EZ-Start 2 electric starter. The hand-held starter unit now fully encloses the battery, and has sophisticated circuitry that regulates the glow plug voltage so you'll never need a separate glow igniter. The unit is also equipped with a thermal shut-down feature to prevent overheating, and diagnostic LEDs indicate glow plug and drive-circuit status for no-guess starting. The hardware that actually cranks over the engine is new too; in addition to an overall beef-up, the new gear train features an elastomer "cush drive" that protects the gears from kickback and overloading.

Bomb-Proof EZ-Start 2! >





TOTALLY TUBULAR

Team Orion CRF Power Graphite Micro RS4 Chassis

Team Orion has to be the king of Micro RS4 chassis kits; there are five CRF Power Graphite designs to choose from! The Ultra and T-power versions are shown here, and there are "Y" and "V" variations as well; all use a different rear pod shape to tune rear traction. All are available with or without cooling fans (Orion recommends that you go for the cooling-fan option if you run mod motors or tall gear ratios).

The CRF Power Graphite chassis are sold assembled in a trick tubular package, so you can't miss 'em at the shop. You can also buy the various pod plates and chassis components separately to create your own custom chassis.

Team Orion (714) 694-2812; team-orion.com.

GO
TO
FUEL

BYRON PIT FUELERS

Instead of transferring fuel from a jug to a fuel bottle, why not just buy it in the fuel bottle? That's the thinking behind Byron's Pit Fuelers. The 16-ounce bottles contain Byron's Race 2000 fuel, are sealed with a child-resistant cap and are ready to fill your tank as quickly as you can screw on the filler neck.

Byron Originals (712)
364-3165; byronfuels.com.



RC4115
\$99.99

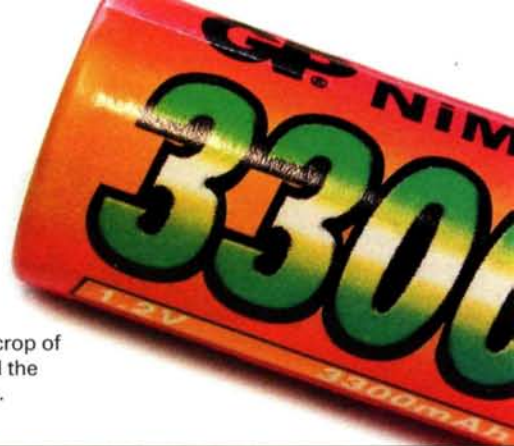


Cuts Slots & Serrates Laydown Standard & P-94 Brushes

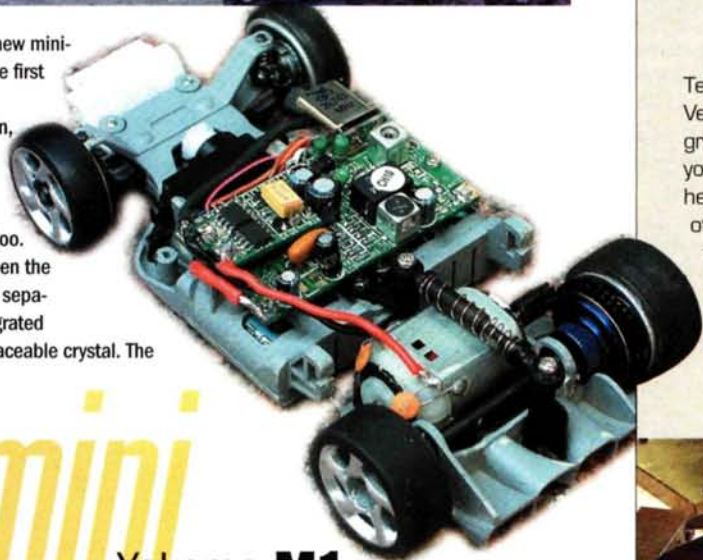
Biggest batteries yet!

TRINITY Gold Peak 3300mAh NiMH

Trinity was the first to get us word of the new super-cells and claims the new Gold Peak cells promise "NiMH performance with Ni-Cd pricing" and more than 400 seconds of run time (at a 30A discharge rate), 1.13 volts per cell and lower internal resistance than the current crop of 3000mAh cells. Trinity plans to offer voltage-enhanced stick packs, and the VIS-Matched GP3300 cells will be available in Race and Team versions. Trinity Products (732) 635-1600; teamtrinity.com.



Here's a closer look at Yokomo's new mini-car—now called the "M1"—that we first revealed in last month's issue. Yokomo will offer bodies of its own, such as this Porsche GT-2, but this shot shows the nose hook and side clips that are designed to accept Kyosho Mini-Z bodies, too. This is also the first time we've seen the electronics package; it features a separate, conventional servo and integrated receiver/ESC circuitry with a replaceable crystal. The



Yokomini Yokomo M1

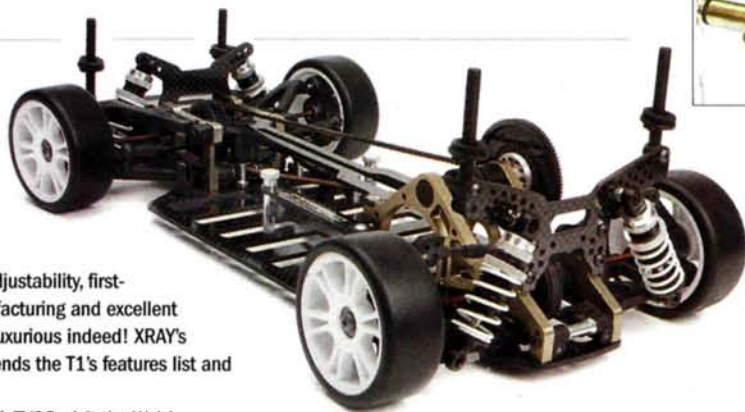
rear pod reveals mono-shock/T-plate suspension with adjustable wheelbase, an anodized ball-diff assembly and a molded-in diffuser to smooth airflow under the chassis. I'm not sure how important aero stuff is at this scale, but it's cool!

Yokomo USA (949) 252-8663; yokomousa.com.

XRAY T1 EVO2

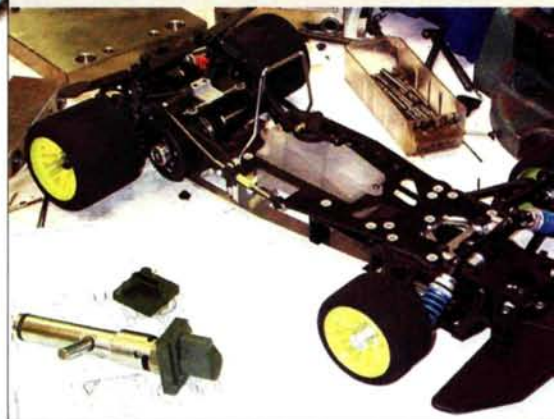
The T1 was RC's first "luxury" touring car, and if you define luxury as full adjustability, first-class materials and manufacturing and excellent performance, the T1 was luxurious indeed! XRAY's follow-up—the EVO2—extends the T1's features list and increases its adjustability.

For the full scoop on the T1 EVO2, visit the Web! XRAY Model Racing Cars; distributed by Serpent USA (305) 639-9665; teamxray.com.



SNAKE CHARMER Serpent 950

Team Serpent currently supports the Vector, Vector NT and Veteq cars in its factory racing program, but it will soon compete solely with the car you see here: the 950. The prototype is shown here in Serpent's tooling department. New items of note include the front end, steering-servo position, top-mounted fuel tank and 2-speed transmission. The transmission has already been proven competitive in Serpent driver Ralph Burch's Impulse Pro (he used it to win the ROAR Nitro Sedan Nats). Serpent USA (305) 639-9665; serpent.com.



It would take more room than we can spare to list all the new features, but here are some of the biggies:

- ▶ 12-slot chassis. You can run your cells 3x3 in any stagger or run all 6 cells on the right or left side.
- ▶ More flexible top deck.
- ▶ New shock towers with extra shock positions.
- ▶ Dual-Ackerman servo-saver.
- ▶ Front and rear belt tensioners are now built in to the T6 duralumin bulkheads.
- ▶ New XRAY shocks.
- ▶ Ultra-thin Kevlar-reinforced drive belts for increased efficiency.
- ▶ High-speed, degreased ball bearings.

XRAY Evolves



NEW TEAM ORION PACKS

Team Orion is also getting behind the new GP3300 cells and will offer both V-Max Matched Packs in Team (highest voltage) and Racer versions as well as a voltage-enhanced Rocket V-Max stick pack. Orion has also announced new Super Duty Plus packs with 3000mAh cells that will be sold in pairs to equip the Traxxas E-Max. Need only one pack? The Rocket Pack Plus uses the same cells as the Super Duty but they're sold individually. All Orion stick packs are assembled with flexible silicone wire and include Tamiya plugs. Team Orion (714) 694-2812; team-orion.com.



Finally, a full-featured ready-to-run buggy! The Evader BX brings all the race-ready standard equipment of the DuraTrax Evader ST to buggies; that means you get universal-joint drive axles, threaded-body aluminum shocks, steel turnbuckles, 3-gear transmission with ball differential and slipper clutch, 20-turn Photon motor, Sprint reversing ESC, Futaba-built radio gear and a factory-finished and trimmed body. DuraTrax even tosses in a "Getting started" video and 8, AA batteries for the transmitter, and all the plastic parts are covered by a 1-year warranty against breakage. DuraTrax; distributed by Great Planes (800) 682-8948; duratrax.com.

DuraTrax Evader BX



NOVAK'S NEXT

Novak GT7

Novak has a lot to say about its Cyclone follow-up, the GT7; the press release for the new top-of-the-line ESC was nearly 1,000 words long! Here are the highlights:

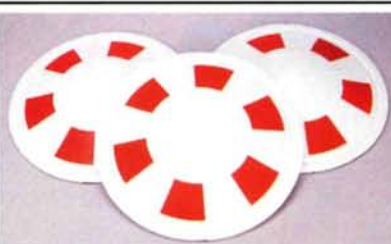


- It's 30 percent smaller than the Cyclone C2 and TC2.
- Brian Kinwald, Jukka Steenari, Greg Hodapp and other pro drivers helped to fine-tune the speed control's throttle response and determine the GT7's base programming values.
- Seven factory-programmed throttle programs can be accessed via the One Touch Set-Up button.
- On-Board Programming allows you to customize the GT7 by selecting standard brake, drag brake, minimum brake and drive-frequency/minimum-drive settings without an external device.
- The GT7's power switch and power capacitor are mounted on multi-position external brackets.
- The usual Novak stuff: One-Touch Set-Up, Radio Priority Circuitry and Polar Drive Technology.

Novak Electronics (949) 833-8873; teamnovak.com.

"No more flipped cones, silly looking fluorescent discs, or markers that slide around"; that was Hyper Hobbies' goal in creating Road Domes, which can best be described as the ultimate corner dots. The red and white, 12x1.5-inch plastic domes have a serious competition look, include anti-skid rubber pads to keep them put and can be stacked neatly when you've finished racing.

Hyper Hobbies (404) 228-9279; roaddome.com.

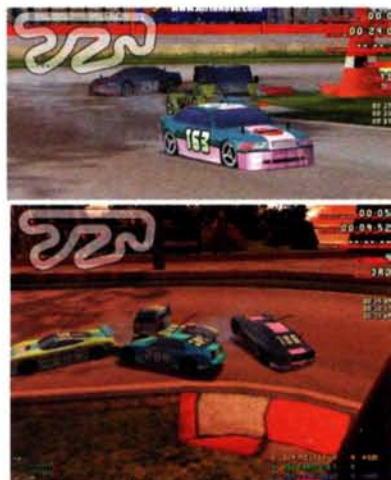


HOT DOT

Hyper Hobbies
Road Domes

Big-screen big-scale Summitsoft Big Scale Racing

Ever wanted to drive a 1/8-scale car? Join the club. Ever wished you could win the lottery so you'd be able to afford one? It's pretty much the same club. But anyone can afford to get into the big stuff with *Big Scale Racing*—a simulator-based 1/8-scale "racing experience" with 240 unique computer-controlled racers, six detailed tracks and realistic vehicle dynamics. You can choose from 10 highly detailed cars with varied handling and performance traits and play in "Training," "Quick Race" and "Championship" modes. For more info, check out bigscalering.com. ■



YOUR BEST BUILDS



**JEFFREY PATERSON,
AUDUBON, PA
TAMIYA BRUISER**

It's nice to see this Tamiya classic getting a little exercise rather than being tucked away on a shelf somewhere. Jeffrey picked up the Bruiser when it first came out in the mid-'80s and has enjoyed it ever since. Along the way, he re-arched the springs for better suspension articulation, lowered the suspension mounts, installed functional lighting, a custom bug shield and a few interior mods, too.

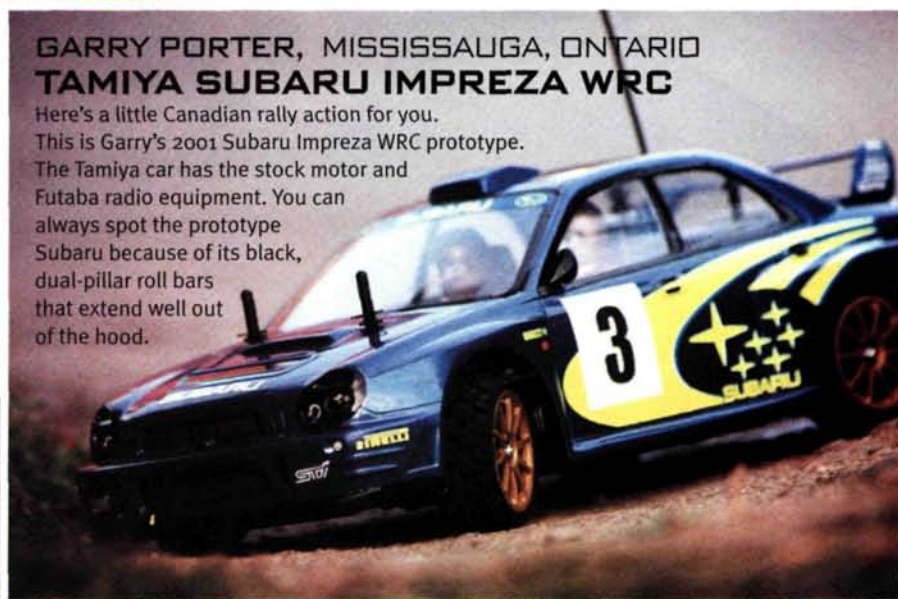


**COLIN GODDARD,
CAIRO, EGYPT
HPI PRO 3**

Imagine what it must have been like to go from Atlanta's active RC scene to Egypt. There aren't any RC shops or clubs, so Colin and his dad started RACE—the Radio Auto Club of Egypt. Colin races this good-looking Mondeo sedan in club events; it has a Trinity P2k motor and batteries, an Airtronics radio, Ellegi foams and a DuraTrax Spike ESC. Check out the club's happenings online by visiting racegypt.org.

**GARRY PORTER, MISSISSAUGA, ONTARIO
TAMIYA SUBARU IMPREZA WRC**

Here's a little Canadian rally action for you. This is Garry's 2001 Subaru Impreza WRC prototype. The Tamiya car has the stock motor and Futaba radio equipment. You can always spot the prototype Subaru because of its black, dual-pillar roll bars that extend well out of the hood.



**SCOTT LANDRY, ST. LOUIS, MO
KYOSHO MP 7.5**

This 1/8-scale buggy delivers hair-raising levels of performance thanks to its RB Concepts S7 engine. Yes, the fur flies and the other drivers wig out when they're pelted by this off-road machine's performance. Scott uses MIP shocks, quad disc brakes and KO radio gear; he tells us that his car is a crowd favorite despite his poor driving skills. No word on whether Scott uses Nitro Wash or shampoo for post-race cleanup.



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Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to *RC Car Action* and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!

THOMAS EDWARDS, STATEN ISLAND, NY HPI SUPER NITRO RS4

This hot-looking green Corvette is a heavily modified Super Nitro RS4 that features a Wolfpack chassis, upgrades from HPI, GPM aluminum components, Futaba radio gear, a Novarossi engine with CVEC exhaust, Kyosho Super 10 tires and a K&N air filter that Thomas "borrowed" from a Chevy V-8 valve cover. The sedan was completed with accessories from Robinson Racing, MIP, Dynamite and Powerline Racing.



JIM MARCUM, LA MESA, CA OFNA MBX R2

In the background of this photo is the beautiful Hotel Del Coronado in San Diego, CA—the movie location for Marilyn Monroe's "Some Like it Hot." It's an appropriate place to run a sizzling 1/8-scale buggy. Jim custom-painted the MBX's body; the car has a Hyper .21 engine, a 2-speed tranny and a Novak XXL receiver, and Jim controls it with an Airtronics M8 radio.

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MATTHEW THACKER
SCOTTSDALE, VA
TRAXXAS E-MAXX

You'd never believe that Matthew has only been into RC for a year; his Traxxas E-Maxx monster truck is only one of his collection (he'll have 10 trucks when he gets his TXT-1). His impressive vehicle begins with a beautiful Pro-Line early '50s pickup body that matches the rest of the vehicle. The E-Maxx has Hardcore Racing aluminum chassis components, diff cases, suspension arms and titanium skidplates. Matthew chose Trinity bulkhead braces, Monster Maxx motors and heat sinks and beefy MIP CVDs and Robinson diff gears. Elsewhere, you'll find aluminum from Megatech, Dynamite, Rockhoundz, OFNA, Hot Bodies and DuraTrax.

READERS' RIDE OF THE MONTH

Matthew's E-Maxx "Angel's Purple Rain," is beautifully executed and nicely photographed—a very classy combination, to say the least. We can't wait to see what Matthew does with his next vehicle.



DAN DAVIS JR., MANITO, IL
TEAM ASSOCIATED RC10GT

Dan set out to make a high-speed truck with this RC10GT, and its record so far is an impressive 48.6mph. It has an O.S. .15 CV engine equipped with a Powerline Racing cooling head, CVEC exhaust and MIP flywheel and temperature gauge. Dan installed a custom four-point roll cage to protect the chassis and finished with Team Losi front tires and Pro-Line rears and a custom-painted Trinity body. ■

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HINTS, TRICKS, TIPS AND IDEAS FROM READERS LIKE YOU

**REALISTIC WINDOW DETAILING**

Here is a cool way to add realism to your body: make the window look as if it is partially rolled down. Cut along the top edge of the window, and then make yet another cut about $\frac{1}{8}$ inch below the first cut; then remove the Lexan between the two cuts.

*M. R. Ogle
Costa Mesa, CA*

**CRYSTAL PULL TAB**

This one's a classic: if the tab rips off your radio crystal, make a replacement by cutting a strip of filament-reinforced parcel-strapping tape and wrapping it around the crystal as shown. Make the tab long enough to be easy to grasp.

*Brent Lydon
Roseville, CA*

SCREW AND CHASSIS PROTECTION

To protect the underside of your chassis from becoming scratched and to prevent the screw heads from wearing down or clogging with dirt, pick up some Ski Saver and use it to cover the bottom of your chassis. Ski Saver is clear, with adhesive on one side and a slick finish on the other.

*Dave Cowger
Seattle, WA*

**FUEL-BOTTLE HOLDER**

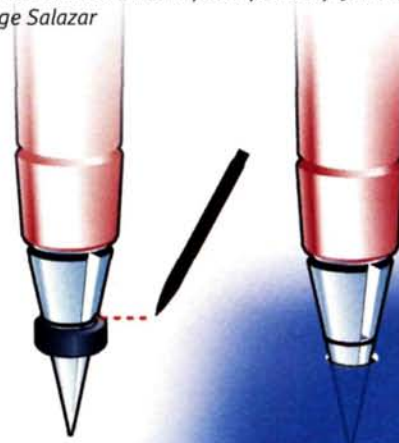
Here's a great way to store and transport your fuel bottle. Take a water-bottle holder from a bicycle and mount it on the side of your pit box. Now you won't have to worry about the fuel bottle falling over and spilling, and it's one less thing you'll have to carry.

*Ralph LaFave
Longview, WA*

**EXACT-SIZE BODY-MOUNTING HOLES**

If your car's body posts use collars to set the body's height, you can use these collars as depth gauges for your reamer. Slide a collar up the reamer's tip until it stops, then draw a line around the reamer's tip using the top of the collar as a guide. Ream the body-post holes up to the line, and you'll find that the holes fit the posts perfectly. [email]

George Salazar

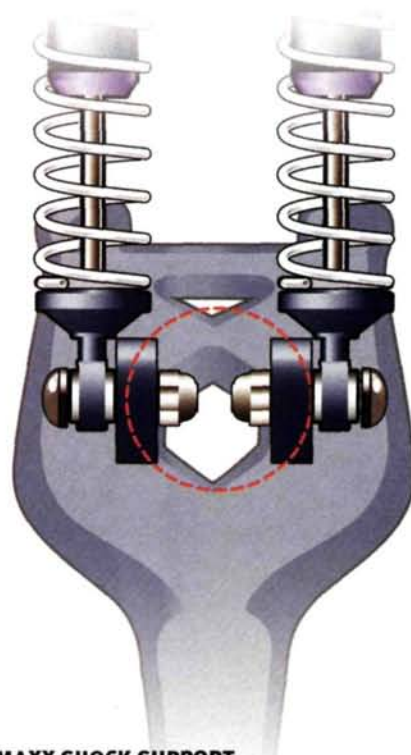
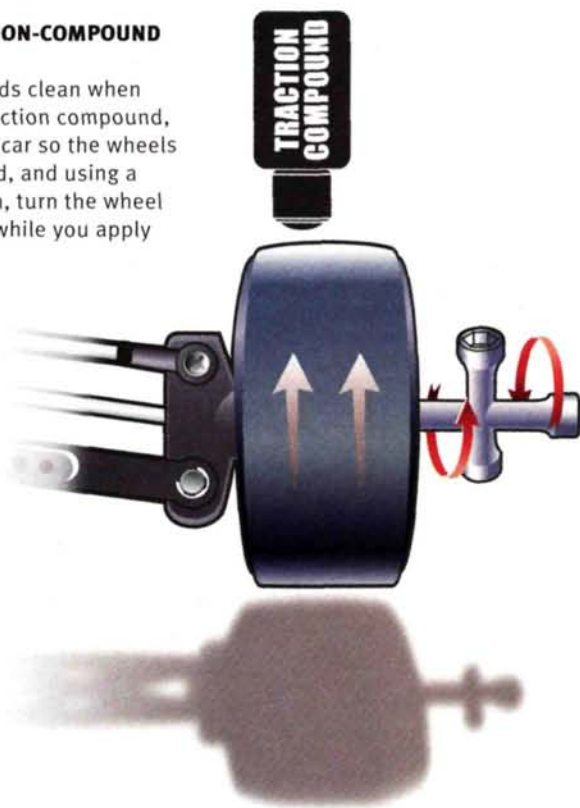


WIN AN OFNA YO-YO, OFNA OB4 AND RC CAR ACTION SUBSCRIPTION! SEE NEXT PAGE FOR DETAILS.

NO-MESS TRACTION-COMPOUND APPLICATION

To keep your hands clean when you apply tire-traction compound, try this. Prop the car so the wheels are off the ground, and using a wheel nut wrench, turn the wheel with the wrench while you apply the compound.

Matthew Francis
Houston, TX



MAXX SHOCK SUPPORT

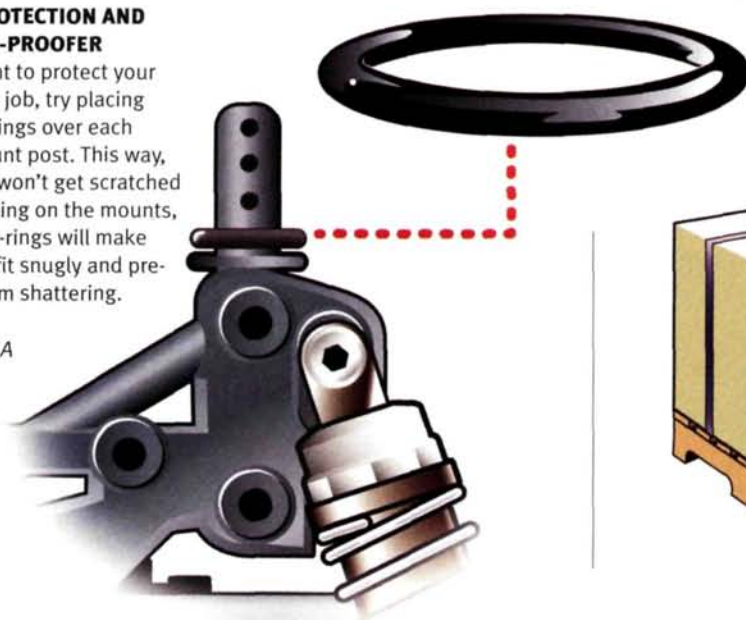
You can strengthen the lower shock mounts on your Traxxas Maxx trucks by passing a screw through the hole in the shock and the shock mount and backing it up with a locknut. Do this for each shock, and the suspension will be much stronger.

Todd Boeck
Sequin, TX

BODY PROTECTION AND SHATTER-PROOFER

If you want to protect your new paint job, try placing shock O-rings over each body-mount post. This way, the paint won't get scratched from rubbing on the mounts, and the O-rings will make the body fit snugly and prevent it from shattering.

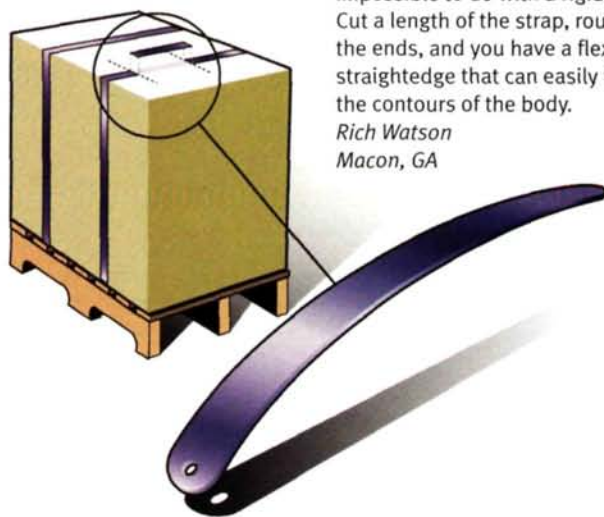
Al Pecora
Revere, MA



FLEXIBLE METAL STRAIGHTEDGE

Metal straps are sometimes used to hold packing crates closed. These straps are perfect for marking straight lines over the curves of a Lexan body—something that's impossible to do with a rigid ruler. Cut a length of the strap, round off the ends, and you have a flexible straightedge that can easily follow the contours of the body.

Rich Watson
Macon, GA



"Pit Tips" are submitted by readers and are screened for functionality, feasibility and safety but are not tested by Radio Control Car Action. Radio Control Car Action and the submitting authors are not responsible for personal injury or damage to models or tools resulting from readers' use of "Pit Tips."

WIN AN OFNA YO-YO AND RC CAR ACTION SUBSCRIPTION! Radio Control Car Action will give a 6-month subscription (or extend an existing subscription) and an OFNA Yo-Yo to the author of each idea used in "Pit Tips." The "Top Tip" winners will also be considered for "Tip of the Year" to be selected at the end of each year. The "Tip of the Year" winner will receive an OFNA OB4 International RTR electric car kit. Send a rough sketch to "Pit Tips," c/o Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one nor return unused material.

YOU'VE GOT PROBLEMS? WE'VE GOT FIXES.

CAN'T FLY RIGHT

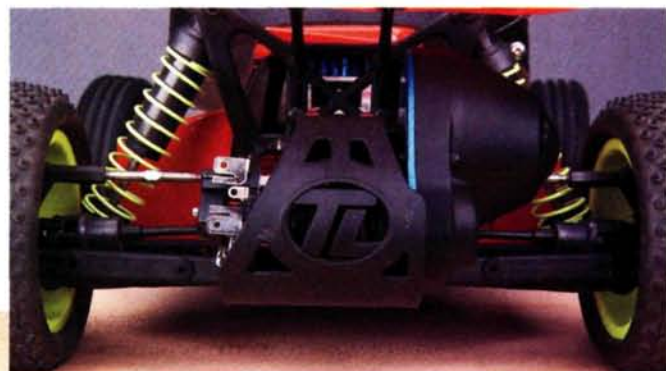
I own a Team Losi Triple-X buggy. I love the car, but I'm having trouble with the jumps at my local track. For some reason, my buggy always flies nose-down when it launches off a jump, and that makes the car flip forward. Can you provide some setup or driving tips? I'm new to the hobby and don't know what to adjust. I'm also getting tired of walking down the drivers' stand to right my car after a crash. [email] Mark Luchejko

Try adjusting your driving style. To level the buggy out, blip the throttle the moment the car takes to the air. If that doesn't help, check out your car's ride height by dropping the ready-to-race buggy onto a flat surface from a height of 8 to 10 inches. When the suspension has settled, check the ride height. The rear dogbones should be level with the surface; the front suspension arms should be slightly above level. Set up your buggy this way by adjusting the shock preload spacers and then taking a few laps. If the buggy continues to fly with a nose-down attitude, add a little more spring preload to the front shocks.

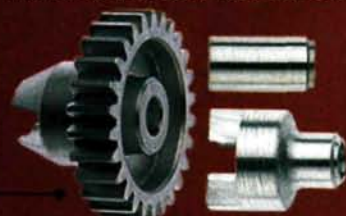


Above: set up your car's ride height so the rear dogbones are level with the track surface, and the front suspension arms are slightly above level.

Left: adjust preload collars to achieve the desired ride height.

**REAL PERFORMANCE PRODUCTS!****Traxxas Lightened Spur And Double-Disc™ Slipper Kits**

RRP's NEW line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch-Plate/Gear Adaptor (small or large), 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes: RRP 8166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx. RRP 8172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro. RRP 8465 Slipper Kit with 65T Steel Spur for Traxxas Nitro. RRP 8472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx. Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.

T-Maxx Forward ONLY Hardened Gear Kit

This kit contains a 26T hardened aluminum output gear, a forward drive hub adaptor and spacer. RRP 8585

Nitro and T/E-Maxx Accessory Spurs

A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72 and 76T sizes, RRP 82XX, or CNC machined steel spurs available in 65, 72 and 76T sizes, RRP 83XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

Traxxas Nitro Hardened Steel Clutchbells

CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119, 20T RRP 8120, 21T RRP 8121 and 23T RRP 8123.

T-Maxx Hardened Forward Primary Gear

Machined from solid aluminum and hard coated. A direct replacement for the stock gear. RRP 8528

48P Absolute Series Pinions

Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! Available in 48P in 16T thru 28T sizes, RRP 1416 - RRP 1428.

48P / 64P SuperLite Aluminum Pinions

They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T, and 64P in 24T thru 38T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

48P Hard Nickel Plated Steel Pinions

These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

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GT WON'T START

I really need help with my RC10 GT RTR. It's all stock except for an MIP tuned pipe. For some reason, fuel never travels through the fuel line to the carburetor. There is no primer on the tank, and I was told to cover the exhaust stinger with my finger to draw fuel up into the carb. The thing eventually starts, but not until my arm is sore from yanking on the pull-start cord a hundred times. Is there an easier way to get it started?

[email]

Neal Arnette

If the engine is tuned correctly, the glow plug is working properly, and the glow-plug igniter is fully charged, the engine should start easily. I suggest that you reread your vehicle's engine manual for proper tuning instructions. Meanwhile, here are a few surefire tips to help you get your engine started quickly.

Remove the air filter, and cover the carburetor with your thumb. Yank on the pull-start cord a few times (without the glow igniter installed over the glow plug) to force fuel up through the fuel line and into the carburetor.

Next, remove your thumb from over the carb, and tug on the pull-start cord a few more times. You should be able to see fuel entering the carburetor at this point. If not, remove the fuel line that's connected to the tuned pipe and gently blow into the fuel line. Once you see fuel entering the carb, stop blowing and replace the fuel line on the tuned pipe. Install the glow-plug igniter over the glow plug, and start the engine. If the pull-start mechanism becomes difficult to pull, you've probably flooded the engine. Remove the glow plug, and yank on the pull-start cord a few times to dislodge the excess fuel before you continue. These tips should help, but you can always buy a starter box—the engine-starting method the pro's prefer.



Check to make sure that the O-ring in the lid of the fuel tank is not damaged. Air could escape from here, thereby preventing the fuel from traveling into the carb.

Placing your thumb over the carb while you yank on the pull-start cord is a surefire way to draw fuel up into the carburetor. Always do this before you install the glow igniter and try to start your engine.

NEW T-Maxx Steel Diff Gear Set



T-Maxx / E-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel Phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP \$590

NEW T-Maxx Aluminum High Performance Brake Kit

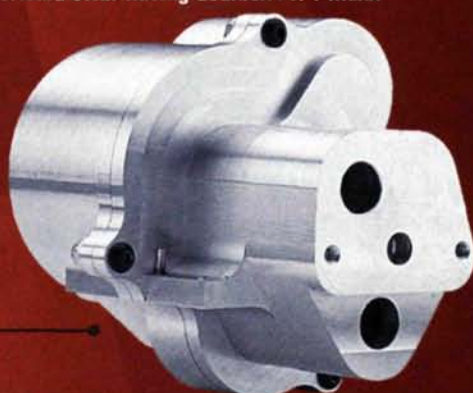


New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. RRP \$560

www.robinsonracing.com



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Precision CNC machined from aircraft grade billet aluminum this Forward ONLY Racing Gearbox will give your T-Maxx a serious competitive edge. RRP \$595

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3WD MONSTER

I need your help with the slightly used OFNA Monster Pirate that I bought from a friend. The truck works great when I run it in my yard and at the park, but whenever I race it at the track, the setscrews that secure the front outdrive cups to the diff output shafts loosen, and the shaft no longer turns the drive axle, so power to one of the wheels is lost. I've tightened the heck out of the setscrews and applied thread-locking compound, but the setscrews still come loose after a few laps around the track.

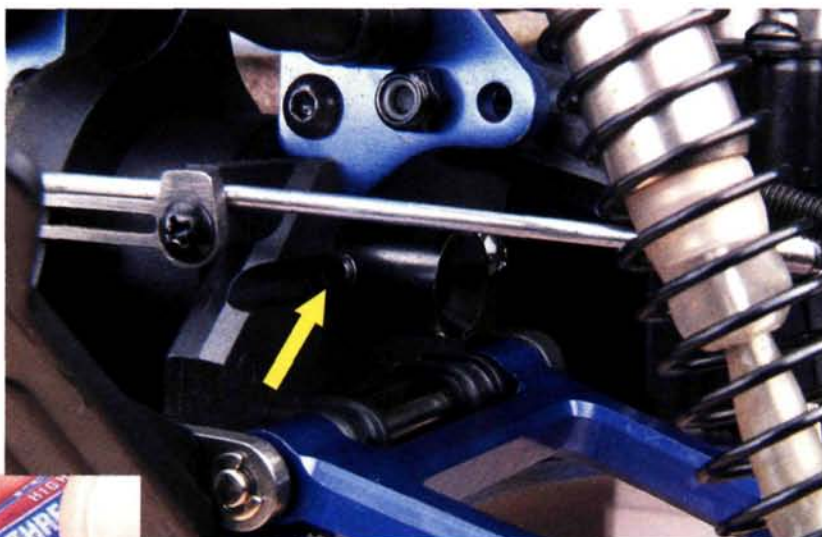
I read the "Super Shop" Monster Pirate article in the August 2002 issue of *RC Nitro* and was wondering if you ran into similar problems with your MP. How can I fix this problem once and for all?

[email]

Jr. Blackhawk



Apply high-strength thread-locking compound to the setscrews before you tighten them.



The setscrews threaded into the diff outdrive cups can loosen over time, and this causes a loss of power to one of the wheels.

I encountered similar problems the first time I raced my MP at the track. The truck was running great and then, all of a sudden, it started handling erratically. A loose outdrive-cup setscrew was the culprit, just as in your case.

I initially used regular-strength thread-lock on the setscrews, but they continued to come loose after only a few tanks of fuel, so I decided to use high-strength thread-lock, and this solved the problem. I have run more than 15 tanks of fuel through my truck since then, and the outdrive-cup setscrews are still tight. Give it a try. You can find heavy-duty thread-lock at hardware and automotive stores.

RS4 Nitro Aluminum Brake Kit



Lightweight aluminum, variable braking system. RRP 1575

RS4 Nitro Vented Flywheel



Aluminum vented flywheels move air over clutch bell, improving performance and cooling.
RRP 1570
RRP 1571 Pull Start

Stealth Sedan Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any HPI electric car or truck.
RRP 1860 thru RRP 1896.

RS4 Nitro Small Aluminum Drive Pulleys



Hardened drive pulleys, sold in pairs.
RRP 1538

RS4 Top Shaft Pulley



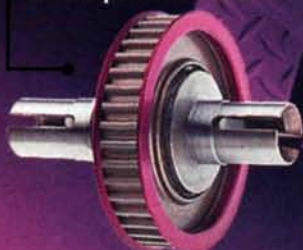
One piece pulley and shaft are precision cut and hard anodized. Purple anodized side flanges are pressed on. RRP 1527

RS4 / Pro / Pro2 / Nitro Aluminum Outdrives



40% lighter than stock ball diff outdrives. RRP 1585

RS4 Complete Ball Diff Units



Hardened steel outdrives, ground and polished thrust washers, 2 5x8mm ball bearings, and aluminum pulley.
RRP 1590 Electric
RRP 1595 Nitro

RS4 Diff Pulleys



Precision machined, hard anodized aluminum diff pulleys.
RRP 1539 nitro sedans
RRP 1528 electric sedans

RS4 Nitro Lightened Gear Adapter



This lightened gear adapter includes a machined nylon spur that's tougher than the stock gear and will last longer.
RRP 1535

www.robinsonracing.com

RS4 Nitro 32 Pitch Conversion Kit is available. RRP 1536

LOOSE MICRO

I'm an LA County firefighter and a certifiable RC nut. I've been building and racing RC vehicles for more than 10 years and have gotten my entire station hooked on RC. A bunch of us decided to buy 1/18-scale HPI Micro RS4s because their smaller size allows us to set up a track in the yard and hold races—that is, when we're not putting out fires. We need some setup advice because none of us is familiar with the Micro chassis and its tuning capabilities. We run 5-cell NiMH battery packs and Team Orion and HPI 45-turn mod motors. Most of the cars are stock and are set up with the longer wheelbase (150mm). The track surface is asphalt and is relatively bumpy—for an 1/18-scale vehicle, anyway. The track is also very slick, and this makes it difficult to get the power to the ground. Which types of tires should we use? Would installing optional shock springs prevent our cars from spinning out?

Kent Meyers, Los Angeles, CA

Kent, before you adjust the cars, you must first prep the track. Sweep all the dust and debris off its surface with a broom or a leaf blower. Next, using a plastic pump-spray bottle, spray sugar water or regular (not diet) soda pop onto the track surface, especially around the corners. When the liquid has dried, it will provide the traction your cars need for racing. When the day's racing is over, hose down the track with water to remove the sticky residue.



After you've prepped the track, you can concentrate on tuning the cars for optimum handling. I suggest that you apply thick lube to the front and rear shock shafts to provide the necessary damping to cope with the track's bumpy sections. The stock, hard-compound tires should work well on the prepped track surface. If your cars tend to spin out in the corners, install stiffer front springs or

HPI and Team Orion sell tuned-spring sets and shock-shaft lube to help you dial in your Micro RS4. If you plan to compete, these items are must-haves.

increase the rear width to the next outward position. If the cars "push" (understeer), apply stiffer rear springs or slightly increase the front track width. Have fun racing!



Improve traction by applying a solution made of soda or sugar water.

TOOLBOX

TEAM LOSI RACE WRENCHES

Losi's new hex drivers peg the needle on the trick-ometer, thanks to their hard-anodized aluminum handles, color-coded endcaps with engraved size info and ground drill-shank bits. It gets better; the bits have a super-hard titanium-nitride coating to minimize wear and prevent stripping, and all the popular metric and standard sizes are available. You can buy Race Wrenches separately or in four-wrench sets, and all the bits are individually replaceable.

Team Losi Race Wrench 4-pc. set (inch/metric)—item no. A-99104/A-99109; \$49.99.

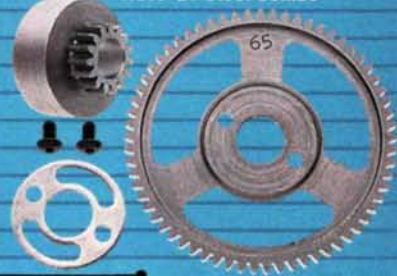
Team Losi; distributed by Horizon Hobby (800) 338-4639; horizonhobby.com; teamlosi.com.



NEED HELP?

Send your "troubleshooting" questions and comments to George M. Gonzalez, georgeg@airage.com.

RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 85T spur and 15T bell combo will last and last. The extra-hardened clutch bell fits ALL Associated and MIP shoes. RRP 2365

www.robinsonracing.com

Blue Lightened Slipper Kit



The rear plate is hard anodized and the front plate is color treated. The front plate holds the pad forcing it to slip on the rear plate. When pad wears, just flip it over for a new surface. RRP 1515 Associated, RRP 7515 Kyosho Ultima

Hardened Steel Idler Gear



Cut from solid steel stock, this gear is lightened and hardened for super quiet precision and extra long life. Jammin' tranny grease is included. RRP 2213 RC10-GT, RRP 7505 Ultima GP-R

Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

Hardened Diff Gear



Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT RRP 7500 Ultima GP/EP-R

Aluminum Outdrives



40% lighter than stock ball diff outdrives. RRP 1475 TC3; RRP 1502 B3/T3

TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T, RRP 1670 RRP 1680.



ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

by Peter Vieira

You know who you are. You're the guy with the 40-ounce Big Gulp. You have a 36-inch flat screen in your room. Your dream ride is a Lincoln Navigator. In short, you like your stuff big. And if you're into sedan-body, nitro-powered RC action, you're probably already eyeballing the cars that fill up this spread. These aren't mere "super-scale" cars; as fast and fun as those .15 powered, plus-size cars are, a guy like you needs more from an RC machine. "More" as in more power (like a .21 engine), more speed (try over 50mph on for size) and more millimeters between the axles. The largest car measures more than 3 feet from bumper to bumper; that big 'un is the Schumacher Nitro Big 6, which joins the Kyosho LandMax and OFNA Ultra GTP in a three-way battle to see which is the best .21-powered sumo sedan. Shall we?

BIG TIME!

KYOSHO LANDMAX 2 **VS.** OFNA ULTRA





GTP **VS.** SCHUMACHER NITRO 81



KYOSHO

LandMax 2

OFF-ROAD
CAPABLE

Consider the LandMax to be the granddaddy of the .21 sedan class. We dug the car when it first appeared in 1998, and the buggy-based platform has only gotten better, thanks to its Inferno roots. The changes that transformed the 1999 IFMAR World Champ Inferno MP-6 into the even faster 2001 World Champ MP-7.5 also appear on the LandMax 2 chassis, which is basically an MP-7.5 Sports with narrower arms and shorter shocks. Kyosho envisioned the LandMax as a dual-purpose platform that could tackle dirt and pavement, and it has fittingly chosen rally racers as body subjects for the big car: this one's the Total/Clarion Peugeot 206 WRC version.

DRIVE TIME

In keeping with its rally theme, the LandMax 2 was tested both on- and off-road. In the dirt, the car's relatively stiff springs and narrow track made it a handful on rough, rutted surfaces, and frequent steering inputs were needed to correct bump-induced heading changes. But on smoother (and more rally-like) surfaces, the LandMax shone with easy-to-control corner drift and just-like-on-Speed Channel dust trails following the car's every move. On pavement, the LandMax enjoyed more grip but was still highly pitch-able, with oversteer easily controlled by throttle input. In straight-line drag runs, the Max accelerated hard and wound out just a little early (it could probably be geared a little higher), but it was still quite fast as its narrow Peugeot 206 body punched a 36mph hole through the air. When the end of the parking lot neared, the LandMax's dual discs easily hauled the car to a stop with plenty of grab left over for wheel-locking stunt action. Throughout testing, the engine never faltered, but each pit-stop temp check revealed it to be running close to 280 degrees; that's hot, but no hotter than we had experienced with the GS-21R without incident. Still, it's best to rest the car between runs, and as you should with all nitro cars, be sure to cut ample cooling holes in the body (as we did, after we shot the photos).

INSIDE THE LANDMAX 2

1. It's an Inferno. Fans of 1/8-scale buggies will recognize the Inferno's 3mm, countersunk aluminum chassis as a direct lift from the Inferno MP-7.5 Sports. It has all the Inferno features: built-in kick-up, "dimples" for lowest possible diff placement, molded side guards, steel-rod braces and a 2mm aluminum radio tray. You also get the buggy's sealed radio box—a two-compartment deal that makes it easy to access the receiver without hassling with its battery pack (and vice versa). Once you've body-clipped the dual hatches closed, nitro gunk is kept away from the goodies inside. A wire rollover hoop is a new addition to the Inferno formula and will help spare the engine from abuse when the action turns upside-down.

2. Triple-diff 4WD. The Inferno connection continues with the drive system that includes front, center and rear gear differentials with plastic housings. Metal ring and pinion gears spin the front and rear diffs, but the spur gear is plastic; I hope it holds up. Kyosho includes a full set of ball bearings to keep everything spinning happily, and dogbone axles are used front, rear and center.

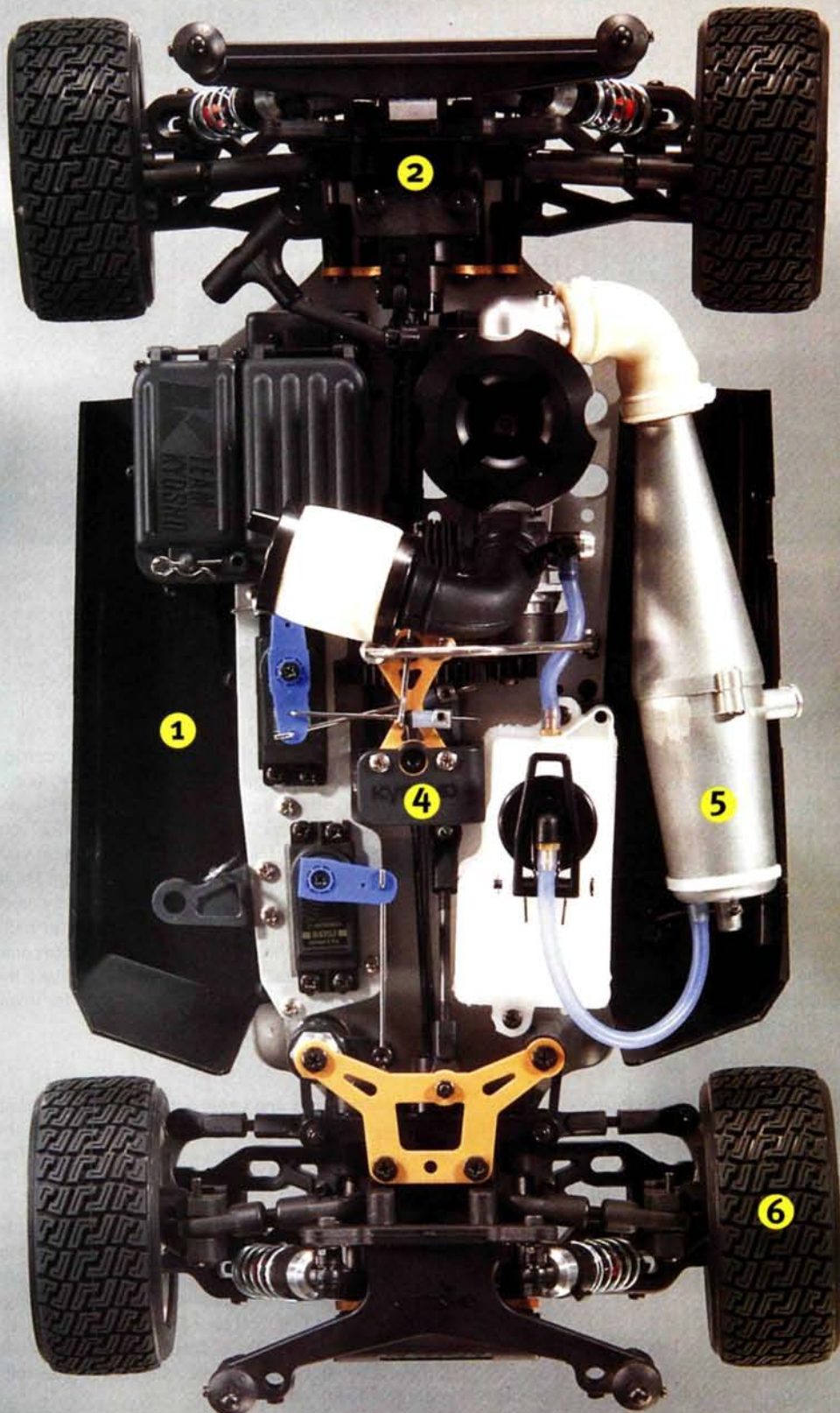
3. Plastic suspension. Unlike the Inferno buggies it was spawned from, the LandMax's shocks and shock towers are plastic, not aluminum. While that may feel like a step down in cool factor, Kyosho's heavy-duty "Sport"

shocks are indeed tough, and the plastic towers aren't a liability thanks to their thick cross-section and their compact size.

4. Front and rear disc brakes. One of the nice things about a 3-diff car is being able to adjust brake bias via independent front and rear brakes. The LandMax has 'em in the form of drilled 2mm rotors and padded steel calipers. Because the front brake is alongside the fuel-tank opening, there's a trick splashguard over the brake to prevent fuel spills from contaminating the pads.

5. Aluminum tuned pipe. The LandMax's pipe isn't exactly what you'd expect when you hear the words "aluminum tuned pipe." Instead of a one-piece design, the pipe is actually a cast, three-piece, screw-together assembly. An O-ring seals the pipe's two primary sections, with a separate convergence cone in between. A silicone elbow joins the pipe to a bolt-on manifold.

6. Rally rubber. Realistic tires with what is best described as an "L" tread fit onto LandMax-specific, one-piece, 5-spoke wheels. The wheels have slots to accept the tires' flat beads, 1/8-scale buggy-style, but foam inserts are not supplied; instead, the tires rely on their relatively low profile and firm rubber construction for marginal support.



big block

Kyosho GS-21R

The GS-21R is Kyosho's standard-issue, big-block, pull-start engine and has proven reliable in other Kyosho cars (such as the Inferno MP-7.5 Sports and the new Mad Force). The new-style black heat-sink head offers improved cooling over the old gold head, and Kyosho includes a high-quality air filter for easy breathing. The piston and sleeve use the preferred ABC construction, and the GS-21R's 2-needle carburetor features a composite plastic body that resists heat distortion and vapor lock. The only things you don't get (or need) are engine mounts; instead, the engine is attached directly to the chassis via tapped holes in the crankcase.

quick specs

OVERALL LENGTH

21 in. (533mm)

WIDTH

9.6 in. (245mm)

FACTORY ASSEMBLY

Drive train installed on chassis

TOP SPEED, AS TESTED

36mph

PRICE (VARIES WITH DEALER)

\$450 (with engine, unpainted, electronics not included)

you'll need

- Transmitter and receiver
- Steering and throttle servos
- Receiver battery
- Glow-starter
- Fuel and fuel bottle
- Polycarbonate-compatible paint
- Tire glue





OFNA

ULTRA GTP

READY
TO RUN

OFNA went for a wider is better approach with the Ultra GTP, which is a lowered, road-going version of the Ultra-series off-road buggy platform. The buggy's long arms are left intact on the GTP, and the wheels are buggy size, too. Two sets of rubber are included, so you can outfit the Ultra GTP with slicks or treaded tires to suit the conditions at hand. The fat tires, wide-track arms and low stance combine to give the Ultra a suction-cup grip on the pavement, and with its humungo body in place, the OFNA car rivals the mega-massive Schumacher Big 6 for sheer size. It's really closer to $\frac{1}{4}$ than $\frac{1}{8}$ scale.

DRIVE TIME

Despite the Ultra GTP's heaviest-car-tested title, the Force .21 delivered impressive, right-now acceleration that made the Viper-body Ultra truly appear to be V-10-powered. Much of that off-the-line rip comes from low-ish gearing, as evidenced by the car's wound-out top speed of 40.6mph; there's more speed on tap if you gear up. Handling-wise, the Ultra GTP is held back by its 94102 "standard" steering servo. We appreciate that it keeps the kit's cost low and doesn't drain four AA batteries too quickly, but it just isn't up to steering a heavy, high-traction, high-speed car with any precision. If you want your GTP to handle its best, an upgrade to a high-torque servo is a must. We went for an Airtronics 94757, which made the most of the Ultra's wide tires and the chassis' big footprint. The Ultra is a very quick handler, with minimal body roll, thanks to its front and rear swaybars, but if you steer aggressively at speed, the hefty chassis can overpower the tires' considerable grip. When that happens, the rear end kicks out, and you have to countersteer and modulate the throttle to keep the car under control—and that's really where the fun begins. Like the LandMax, the Ultra GTP is most fun when driven past the edge. All the obnoxious stuff you'd be arrested for if you had a real Viper is perfectly legal and 99 percent as much fun with OFNA's Ultra GTP version.

INSIDE THE ULTRA GTP

1. Underneath, it's a buggy. OFNA's Ultra-series off-road buggy is essentially unchanged for its GTP on-road duties. The shock towers are a little lower and a large front bumper has been added, but the GTP is otherwise a buggy in disguise. Nothing wrong with that; you get a 3.2mm countersunk aluminum chassis and shock towers, a 2mm radio tray and chassis braces and ample, plastic stone guards.

2. Steel spur gear. Combine a heavy $\frac{1}{8}$ -scale buggy chassis with a powerful .21 engine and you get a seriously strained spur gear. Steel is the way to go, and OFNA wisely went ferrous for the Ultra GTP's all-important gear. Don't look for a center differential, though; the GTP has a solid "diff spool" that sends full-time 4WD power out to the front and rear diffs through steel ring-and-pinion gears. Dogbones spin the rear wheels and link the diffs to the spur gear, but the front end gets brightly plated universal-joint axles, and like just about all big-block machines, the GTP has a full set of ball bearings.

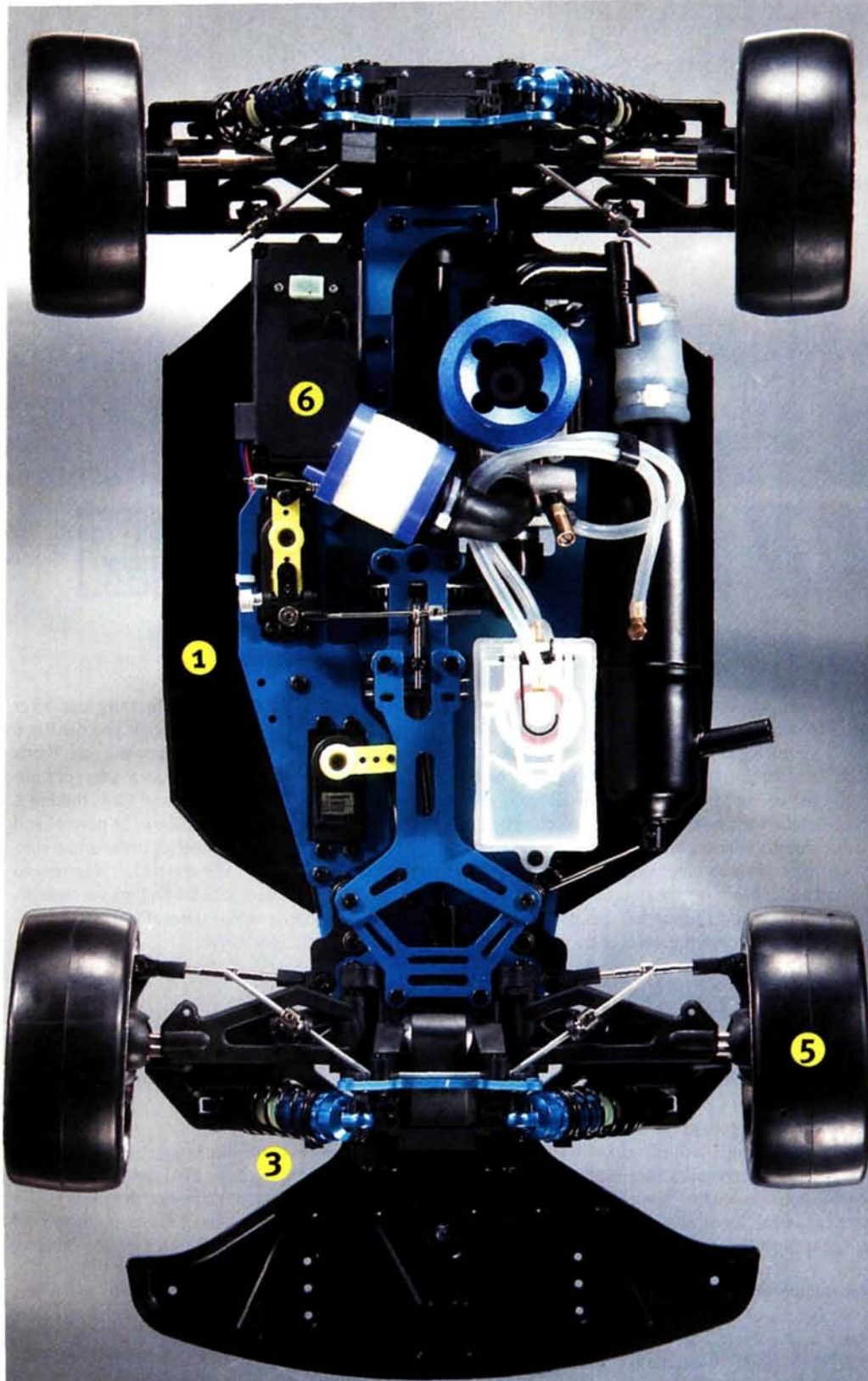
3. Aluminum shocks. Make that large-diameter, blue-anodized, long-travel aluminum shocks. Silicone boots help keep their shafts clean, and thick 2.5mm towers give them a stiff base. The shocks are pinched by

buggy-width upper and lower wishbone arms up front and lower H-arms with turnbuckle camber links in the rear. Pivot-ball steering arms and 2mm front and rear swaybars round out the fully adjustable suspension.

4. It's painted. Once you crack open the Ultra GTP's box, you're only about half an hour from tearing up the local parking lot. That half hour will be spent trimming and decaling the painted body, which can be had in Dodge Viper, Mercedes CLK, McLaren F1 and Celica rally versions. Zegers RC Graffix custom-painted clear shells for our tests; the factory bodies are shot in one color and come to life with decals.

5. Wheel deal. Chrome, 5-spoke wheels set off with vivid blue axle nuts give the Ultra GTP a convincing street look, and OFNA glues the tires for you—all eight of them. Two full sets of sneakers are included: one set of slicks, another with V-treads.

6. 100 percent RTR. The Ultra GTP is the only ready-to-run of the group and includes an Airtronics Blazer radio system with 94102 servos, glow starter and fuel bottle. The budget Airtronics transmitter is as reliable as ever, but the servos would be more at home in a lighter vehicle. We'll see how they do.



big block

Force .21

OFNA puts the Force engine to work in many of its vehicles, and it's well suited to the Ultra GTP. An aluminum-body, 2-needle carb is standard, as is a large foam-element air filter. An aluminum tuned pipe and spring-mounted manifold take care of the exhaust, and a substantial heat-sink head helps keep everything nice and cool. The piston and sleeve get the ABC treatment for maximum durability, and a 3-shoe clutch and steel clutch-bell are standard. Cast mounts hold the engine to the chassis, and like the other big-block cars, the Ultra is brought to life via a pull-starter; no starter box required.

quick specs

OVERALL LENGTH

25 in. (635mm)

WIDTH

11.9 in. (302mm)

FACTORY ASSEMBLY

Completely RTR

TOP SPEED, AS TESTED

40.6mph

PRICE (VARIES WITH DEALER)

\$400 (RTR with painted body)

you'll need

- Receiver battery
- Fuel
- One C and 12 AA alkaline batteries



HOW BIG IS BIG?



That's a 1/10-scale car on the far right; now you can see just how big these cars really are! The OFNA Ultra GTP is wearing its factory-painted Celica body and included decals.



Schumacher

NITRO BIG 6

BIGGEST & FASTEST

In this battle of big, the Schumacher Nitro Big 6 is clearly the leader in large. With a whopping 15-inch wheelbase and more than a foot between the left and right sidewalls, the Big 6 has a major presence on the parking lot. But don't think of the Sixer as a portly pavement pounder; beneath the Lotus Elise body lies a lightweight chassis and belt-driven 2WD system that allows the included Thunder Tiger Pro .21R engine to push the Big 6 past 55mph. It handles, too, thanks to wide-track, low-profile rubber and laydown shocks on all corners. The Big 6 is a lot of car for a little money, especially when compared with traditional $\frac{1}{8}$ - and $\frac{1}{4}$ -scale rides.

DRIVE TIME

Schumacher made a good choice in spec'ing the Big 6's Thunder Tiger engine; it started on the first tug and (after break-in) idled like a Toyota Camry. But all family-car comparisons end when you squeeze the trigger and the Big 6 shoots off in a surprising hurry and blasts to its 58mph top speed with three crowd-pleasing shifts on the way. That's only 4mph faster than the single-speed Nitro Big 6 we tested back in May 2001, but when more than 2½ feet of touring car hauls past you at above the legal speed limit, you don't wish for more speed. The 3-speed gives the Big 6 improved acceleration and better low-speed handling by keeping the engine in the meatiest portion of its power band even at partial-throttle speeds. To hustle the machine around a tight course, we went for some drag brake and a kick-it-out driving style. This is usually sketchy stuff with a 2WD car, but thanks to the Big 6's size and heft, it was easy to control the amount of oversteer the chassis developed from turn to turn. The sensitive disc brake helped, too, with its superb feel. Be wary of fast stops at full speed, though; as a 2WD car, the Big 6 must rely on the rear wheels for braking, and it's easy to overcome the limits of traction when you have to stop the car in a hurry.

INSIDE THE NITRO BIG 6

1. Oh, it's big, all right. The Big 6 has a 3-inch-wheel-base advantage over the LandMax and Ultra GTP, but the car's real sense of hugeness comes from its bathtub body and massive tires; at 4 inches in diameter, each is about as big around as a compact disc. Fully assembled, the Big 6 measures 26 inches bumper to bumper—that's a lotta car—not a lot of weight, though. The Big 6 is actually lighter than the Ultra GTP.

2. 4mm aluminum chassis. There's a lot of chassis between the Big 6's wheels, yet the car is a "single-deck" design. To give the chassis the rigidity it requires, Schumacher specs 4mm aluminum for the stamping, which includes a slight front kick-up. A separate plate constructed of Schumacher's trademark S1 composite is home to the fuel tanks and radio gear.

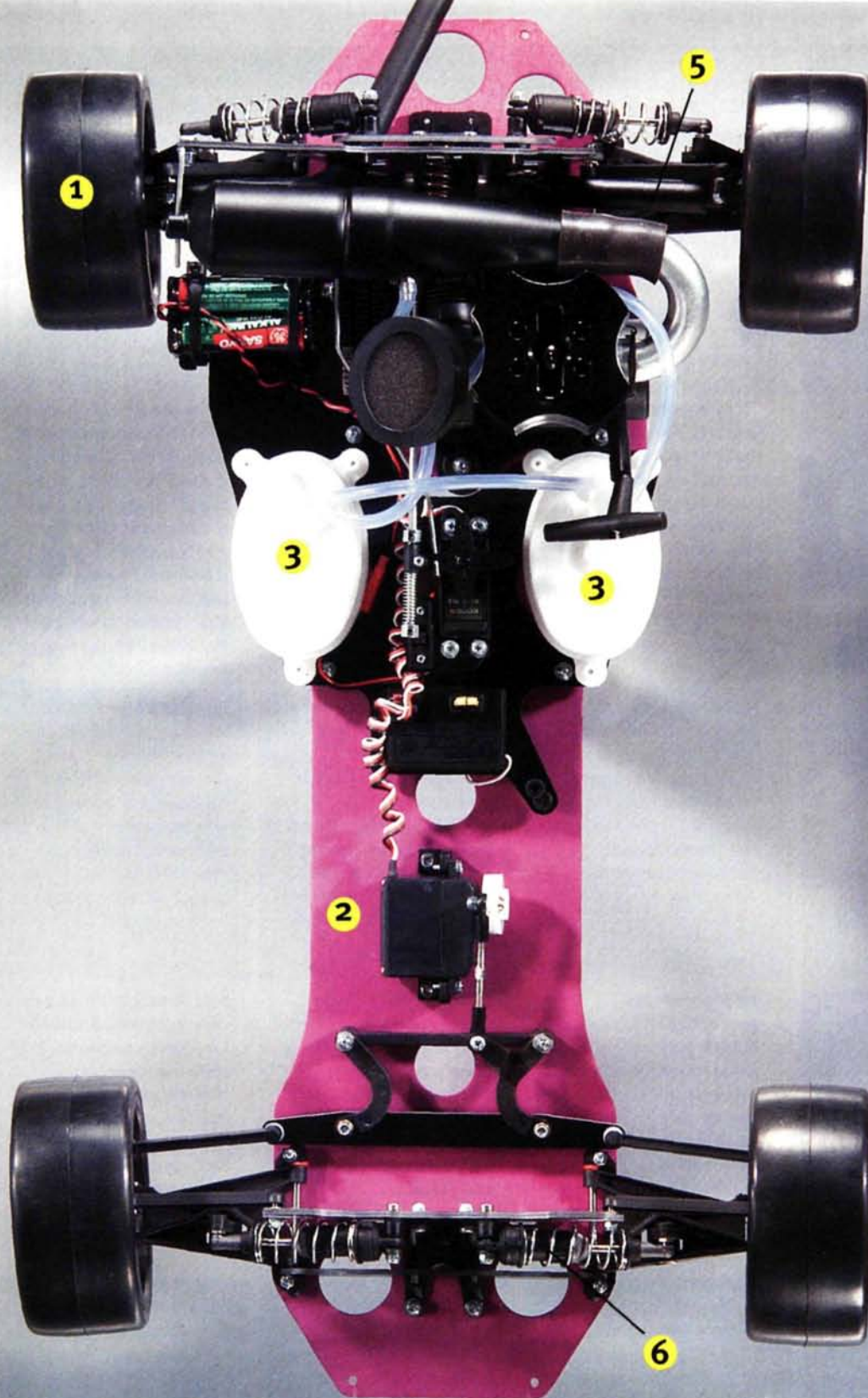
3. Two tanks. Most .21-powered cars include a 125cc tank, but the Big 6 carries 150cc in a pair of 75cc tanks. It looks cool, but it slows down pit stops, and the tanks' small openings and tightly sprung lids don't help to speed things up.

4. Three speeds. When we first reviewed the Nitro Big 6 (May 2001), it was equipped with a single-speed transmission. Now it has a 3-speed tranny—a clever setup that uses ratchets in the gears instead of one-way

bearings. We'll see how much that translates to a speed increase; even with one speed, the Nitro Big 6 topped 50mph when we last tested one!

5. Rear-wheel drive. Unlike the buggy-based OFNA and Kyosho machines, the Big 6 is a 2WD car. With less drive train to absorb the .21 engine's power, the Big 6 has to have a rugged transmission. And it does—in the form of an enclosed belt-drive system; but if you're thinking about the belts in your electric touring car, think again. The Big 6's single drive belt is extra wide and wraps around a ball differential that is also heavy duty, thanks to 3mm balls (Schumacher actually uses these balls in all its cars, but big is big). Telescoping plastic universals connect the diff to the wheels; as you might expect, ball bearings are used throughout.

6. Laydown damping. The Big 6 is undeniably huge, yet its shocks are lifted directly from Schumacher's $\frac{1}{10}$ -scale parts inventory. The well-proven dampers have two-piece pistons that can be set for more or less damping by selecting more or fewer open holes, and a piece of foam in the bottom-loaded sealed cartridge handles volume compensation. Tall standoffs on the suspension arms and low-profile S1-composite shock towers give the plastic-body shocks their laydown position and the specific geometry required for Big 6 duty.



big block

Thunder Tiger Pro .21BX-R

The Nitro Big 6's Thunder Tiger powerplant is a very well-finished and full-featured engine. A massive heat-sink head virtually guarantees cool running, and the ABC piston and sleeve inside are known to be tough. A round-port, spring-mounted manifold and aluminum tuned pipe are stock, and a 2-shoe clutch with a stack of gears spins the 3-speed tranny. The Pro .21 BX-R's pull-starter feels the most robust of all the cars', and its aluminum-body, 2-needle carb operates with silky precision. A throttle-return spring is included to close the carb, in case of a radio failure; it would be nice if all manufacturers included one.

quick specs

OVERALL LENGTH

26.1 in. (663mm)

WIDTH

12.8 in. (325mm)

FACTORY ASSEMBLY

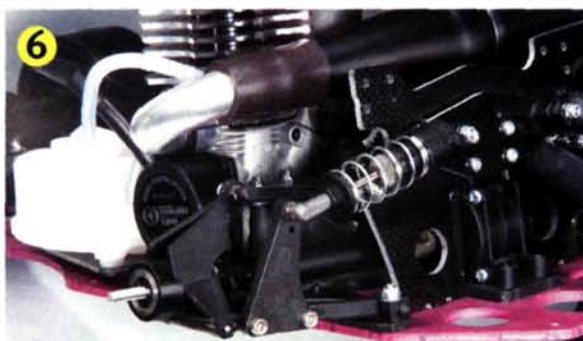
Assembled rolling chassis with installed engine

TOP SPEED, AS TESTED

58.1mph

PRICE (VARIES WITH DEALER)

\$380 (includes engine and unpainted body; electronics not included)



you'll need

- Transmitter and receiver
- Steering and throttle servos
- Receiver battery
- Glow-starter
- Fuel and fuel bottle
- Polycarbonate-compatible paint
- Tire glue

TEST SETUP

■ **FUEL.** We tested all three cars on Trinity Monster Horsepower 20-percent nitro. We even put Trinity's Kooler bags over the jugs to keep 'em frosty.

■ **RADIO GEAR.** We mixed it up in the transmitter and receiver department; the Schumacher got a Futaba Magnum system, the OFNA was tested with its included Airtronics Blazer rig, and the Kyosho was outfitted with a JR XR2 setup. All three cars were equipped with appropriate JR, Futaba and Airtronics "standard" servos for throttle duty.

■ **STEERING SERVOS.** Big cars need powerful steering servos, so each car was outfitted with a high-torque unit that matched the installed radio gear. The Big 6 was steered by a Futaba S9450 digital unit; the LandMax 2 got a JR Racing Super Race; and the Ultra GTP was upgraded to an Airtronics 94757.

■ **PAINT.** Bill Zegers of Zegers RC Grafixx painted the Ultra GTP for us. The Kyosho wears a coat of Pactra Indy Silver and its included decals, and Schumacher supplied the painted shell for the Big 6.



**KYOSHO
LANDMAX 2**



**OFNA ULTRA
GTP**



**SCHUMACHER
NITRO BIG 6**

**IF I HAD TO
PICK JUST
ONE ...**

editors' comments



Peter Vieira

For pavement pounding and size appeal, the Ultra GTP and Nitro Big 6 are more impressive than the LandMax 2, but for rally fans, Kyosho is the ultimate RC car. It's very realistic and enjoyable to drive anywhere, and Kyosho quality makes it a fun (but pricey) package.

The Ultra is a great value at about \$400 ready to run and is a blast to drive in a straight line, but a steering servo upgrade is required for the car to handle its best. Its engine needed a little more tuning time than the others, but once we had the needles dialed, the Force .21 ran all day and made lots of power.

The Schumacher drew the most attention from passers-by, thanks to its hugeness. The shifting transmission was a crowd-pleaser, too, as was its best-in-class top speed. It's technically less exciting than the OFNA and Kyosho cars but for "that thing is awesome!" appeal, the Schumacher is the car to beat.

The LandMax 2 seems the best choice because of its dual-purpose capabilities; with one car, you can go on- and off-road. But my favorite is the Big 6. It's enormous, with an excellent engine and a high fun factor, and it's the fastest. Fastest is always fun.



Kevin Hetmanski

The Kyosho LandMax 2 isn't the biggest of the bunch, but I feel it's the most maneuverable, and you can drive it almost anywhere. Just about any hop-up part designed to fit the 7.5 buggy can be bolted onto the LandMax 2. That's a major plus, if you ask me. The LandMax 2's only downfall is its rather steep price.

The OFNA Ultra GTP is fun to play around with, and with a little tweaking, it could be a force on an on-road racecourse (if you could find a class to race it in). The engine ran great from tank to tank, and the throttle/brake servo did a fine job working the carb and brake. The steering servo, on the other hand, is only up to the lightest-duty cornering.

Not only is the Big 6 a large car, but it also packs some punch with a reliable .21 pull-start engine and gets up to crazy speed with help of the 3-speed tranny. I found that I had to work the throttle a little to get it to launch straight off the line. Doing donuts with the big car never gets old.

I would go with the OFNA Ultra GTP for its excellent out-of-the-box performance and hop-up potential. Factor in the car's low price (especially when you consider that it's fully RTR) and the body options, and the Ultra is the car for me.



Greg Vogel

The LandMax 2 is a solid machine. I rallied the car over 2x4s, drove it on rough pavement and even launched it off the pitcher's mound on a baseball field, and the car showed no signs of problems other than some body damage. The engine runs like a clock (a loud, smoking clock), fires up in a few pulls and doesn't stop until the tank is empty. The LandMax 2 gets high marks on the excitement scale.

This sucker is big and badass. The loud throaty pipe, body roll in the turns and brute power really add to its excitement. I don't think it saw anything less than full throttle when I was behind the wheel, and the engine kept running like a champ. OFNA did a fantastic job turning an off-road buggy into a fun parking-lot racer.

If you like doing donuts, this is the car for you. Rear-wheel drive, a 3-speed tranny and a powerful .21 engine break the wheels free effortlessly, and the big car lays down some impressive speed. It takes a little while to master the Six's brake-into-the-turns handling characteristics, but when you do, it's fun driving.

Tough call, but I'm going with OFNA's Ultra GTP. It's just a great package with lots of power, and it's gobs of fun to drive. And since it is basically a buggy, an off-road session is just a set of knobbies away.

SOURCE GUIDE

AIRTRONICS (714) 978-1895; airtronics.net.

FUTABA distributed by Great Planes; futaba-rc.com.

GREAT PLANES MODEL DISTRIBUTORS/HOBICO (800) 682-8948; hobbico.com.

JR distributed by Horizon Hobby (217) 355-9511; horizonhobby.com.

KYOSHO distributed by Great Planes; kyosho.com.

OFNA RACING (949) 586-2910; ofna.com.

PACTRA INC. distributed by Testor Corp (815) 962-6654.

SCHUMACHER USA (813) 889-9691; racing-cars.com.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

ZEGERS RC GRAFFIXX (561) 988-5411

FIRST LOOK >>

OFNA TITAN

by Peter Vleira

When OFNA released its Monster Pirate, the giant tire truck's appearance screamed "Bigger is better!" With its new Titan, it seems OFNA is saying "Taller is better." Like the Monster Blazer, Monster Pirate and Dominator before it, the Titan puts 1/8-scale-buggy suspension parts to work in a monster format. But unlike those previous monster efforts, the Titan doesn't use a flat, buggy chassis; instead, the new chassis is cleverly elevated for extra ground clearance. By itself, this feature sets the Titan apart from other buggy-based monsters, but other firsts are found on top of the lifted chassis; try on a .25 engine and a steel-gear transmission for size. Let's check out everything that the Titan has to offer.



SPECIFICATIONS

DIMENSIONS & WEIGHT

Overall length 9.5 in. (495mm)

Width 17.25 in. (438mm)

Height to top of cab 11.5 in. (292mm)

Wheelbase 13 in. (330mm)

Tire dimensions (WxD) 4.5x5.75 in.
(114 x 146mm)

Weight, RTR 13.05 lb. (5,919g)

CHASSIS & TRANSMISSION SPECS

Chassis material 3.2mm-thick plate
aluminum

Drive axles (F/R) OFNA CVA universal
joint/dogbones

Slipper clutch Adjustable, dual-pad

Transmission 2-speed centrifugal,
drive-dog-type

Shocks Hard-anodized aluminum,
threaded-body with shaft gaiters

Suspension type (F/R) Upper and
lower wishbone pivot ball/lower H-arm
with turnbuckle upper wishbone

ENGINE & ACCESSORIES

Engine OFNA Force .25

Air filter Foam element with silicone
coupler

Manifold Bolt-on, tubular aluminum

Exhaust Polished-aluminum tuned pipe

Fuel tank 125cc, primerless, cap-vented

INCLUDED ELECTRONICS

Transmitter Airtronics Blazer Sport

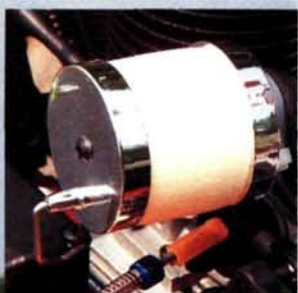
Steering servo Airtronics 94161

Throttle servo Airtronics 94102

RAISING THE
BIG-BLOCK
STANDARD

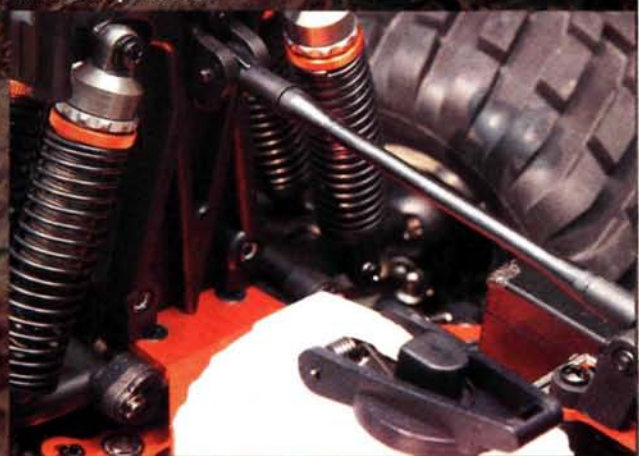
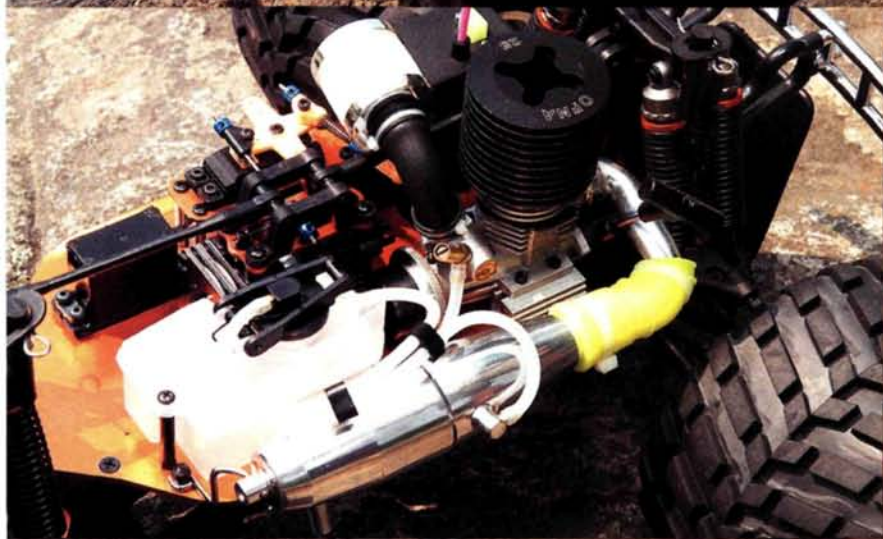
Chrome Foam >>

For sheer style, how could anyone resist a chromed air filter? The shiny stuff is just for looks, but we do appreciate the functionality of the filter's wire support, and the element is made of high-quality foam. And that's a good thing, since the Titan's .25 engine will be breathing through it quite heavily.



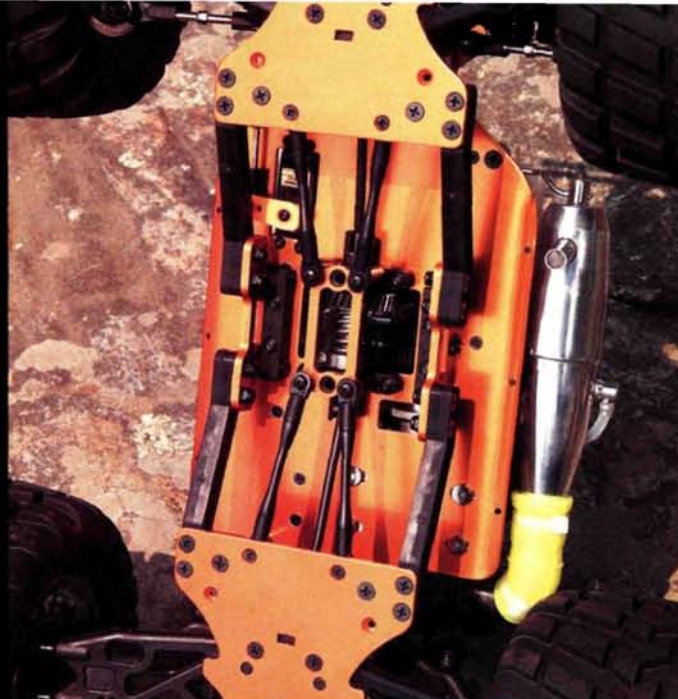
>> Chassis l'Orange

Yep, it's orange all right. If the main chassis looks a little bare, it's because OFNA put the front and rear gearboxes beneath the chassis rather than on top of it. But there's still plenty to look at up here; most notable are: the full-length front and rear rod braces; the polished-aluminum exhaust system; a 125cc fuel tank with spillway and cap-mounted vent; a dual-rotor disc brake; and an inverted steering servo. Because the steering servo is attached to the main chassis directly, the Titan just needs a shorty radio tray to hold the throttle servo. A pair of standoffs support the front of the tray, and the Titan's ample radio box holds up the rear.



High There >>

The Titan's extra ground clearance is clearly visible here. Plastic "ladder bars" help give the chassis a scale-like look, but the steel rod braces do the heavy work of supporting the front and rear sub-plates that hold the gearboxes. The individual parts are strong in their own right; all the plate parts are 3.2mm-thick aluminum. The chrome-plated wheels and chevron-lug tires are unique to the Titan, and as part of an RTR package they come factory-glued with foam inserts.



Big Boing >>

There's a lot of familiar $\frac{1}{8}$ -scale buggy stuff in the suspension. The pivot-ball steering knuckles and lower suspension arms are from OFNA's MBX series, and the plated CVA drive axles have been put to good use on many of OFNA's other buggies. The shocks are identical to those spec'd on the 9.5 (except for the color), and they feature threaded, hard-anodized aluminum bodies and rubber-shaft gaiters. The Titan is OFNA's first eight-shock truck, and it features an upper-arm mounting system instead of the pierced-arm standard that was set by the Traxxas T-Maxx and Tamiya Terra Crusher. Speaking of the Tamiya and Traxxas trucks, check out the front bumper and skidplate—very Maxx-like.



Biggest Block

Thunder Tiger's EK-4 has truckdom's most massive engine with its beyond-big .70 engine, but in the world of regular-size big-block power, the Titan is the new displacement champ thanks to a .25 pull-start Force powerplant. Finned engine mounts are standard, and the usual Force features have returned: ABC piston and sleeve (punched out to displace .25ci); a 2-needle slide carb; an 11-fin heat-sink head; and a compact pull-starter. The clutch is a 3-shoe unit, and as you have no doubt noticed, there are two gears on the clutch bell; that can only mean one thing (a 2-speed, in case you haven't already guessed).



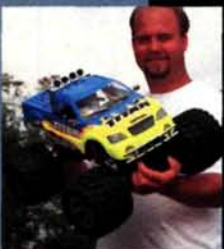
<< Heavy Metal

Even with the extra oomph of a .25 engine, the Titan is too much machine for a single-speed transmission to deliver both quick acceleration and nitro-worthy top speed, and that's why there's a 2-speed buried in the chassis' center. The heavy-duty, drive-dog-type unit uses wide, plastic spur gears, but the drive shafts you would expect to see poking from its outdrives are nowhere to be found. Instead, they're under the chassis.

To spin them, the Titan uses a pair of steel helical gears to reach through the chassis. The lower helical gear incorporates a stiffly sprung slipper clutch, which should greatly extend the life of the plastic spur gears. Dogbones reach from the slipper clutch to the steel-gear $\frac{1}{8}$ -scale-buggy front and rear differentials. Note that the upper half of the transmission has one "open" outdrive (on the left), and the other is used as home for the Titan's padded-caliper, dual-steel-rotor disc-brake system (on the right).

Ready to Run over Stuff

LIKE OFNA'S DOMINATOR and Monster Pirate, the Titan will be sold as an RTR with the usual amenities, including a fuel bottle, glow starter and a painted, trimmed body. Airtronics Blazer Sport radio gear and a 94102 throttle servo are standard equipment, but OFNA wisely upgraded to a 144 02-in. 94161 Pro steering servo. OFNA may even borrow a great idea from its 9.5 RTR and include a fail-safe with the Titan, but that has yet to be decided. Its inclusion will most likely hinge on the truck's final price, which has yet to be determined).



SO FAR, SO GOOD

The editors split on the Titan's orange anodizing, but we all agreed that the Titan is a very compelling next step for buggy-based monsters. The pumped-up .25 engine is welcome, its 2-speed transmission appears destruction-proof (thanks in large part to the included slipper clutch), the suspension feels right, and the wheel, tire and body package is OFNA's best-looking yet. Now, all we have to do is drive one. As much as it pained us, we promised the OFNA guys that we wouldn't run the Titan we pried away from them. But with the production truck available to us in just a couple of weeks, a complete Track Test could appear as early as the next issue. Can you hold out that long? ■

SOURCE GUIDE

OFNA RACING (949) 586-2910; ofna.com.

Associated RC10GT Plus RTR





It's the GT, plus a Factory Team chassis, a new body & a better radio

TEN YEARS AGO, MOST RACERS WOULD HAVE GASPED if you had told them that Team Associated would make a ready-to-run (RTR) nitro truck. Heck; they might have even gasped at the suggestion that Team Associated would make a nitro truck at all. The company was then immersed in the production of the electric B2/3 and T2/3 buggies and trucks, but the world didn't know that the "Team" was, in fact, designing the RC10GT—one of the first racing nitro trucks. Of course, who knew what really constituted a "racing" truck back then because there was no standard. The RC10GT in fact set the standard for what is now the popular nitro off-road truck class.

About five years later, Team Associated—one of the premier manufacturers of racing kits—surprised us by entering the RTR market. This was new territory for the company, and the RC10GT-based RTR truck was a new RTR concept.

Since the introduction of the RC10GT RTR in late '99, the nitro RTR truck market has changed. No longer does the RC10GT compete only against basher-type trucks; it has increasing competition from race-bred challengers. This newest RC10GT RTR Plus is an update of the original RC10GT RTR, and it has a host of new features that bring it into line with the kit versions of the GT; this allows the use of any kit part as a replacement part for the RTR Plus.



The Team Associated ABC .15 pull-start engine is strong, reliable and easy to start and tune. True ABC construction means enhanced durability. Note the big tube header and the standard tuned pipe that increase efficiency and performance.



DATA CENTER

VEHICLE TYPE 1/10 off-road RTR nitro stadium truck

BEST BUYER Entry-level to intermediate nitro truck enthusiast who has racing aspirations

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Very good

Parts fit and finish Very good

Durability Good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER Team Associated

MODEL RC10GT RTR Plus

SCALE 1/10

PRICE (varies with dealer) \$300

DIMENSIONS

Wheelbase 10.75 in. (273mm)

Width 12.12 in. (308mm)

WEIGHT

Total, as tested 69.1 oz. (1,960g)

CHASSIS

Type Stamped and channeled lower plate

Material 1/8-inch-thick (3.17mm) anodized-aluminum

DRIVE TRAIN

Type Enclosed gearbox

Primary 15T/66T

Transmission ratio 2.60:1

Final drive ratio 11.44:1

Drive shafts Steel dogbones

Differentials Adjustable ball diffs with steel outdrives

Bearing type Metal-shielded ball bearing

SUSPENSION (F/R)

Type Lower H-arms with turnbuckle adjustable upper links

Shocks Double O-ring-sealed aluminum body with clamp-style spring adjusters

WHEELS

Type One-piece dish-style wheels

TIRES

Type (F/R) Ribbed/medium-grip pin; preglued foam inserts

ENGINE AND ACCESSORIES

Engine Team Associated

ABC .15 pull-start

Carburetor 2-needle rotary-valve carb

Exhaust Big tube header with tuned pipe

Fuel tank 75cc, flip-cap w/out primer

THE NEW FACTORY TEAM-TYPE CHASSIS IS ONE OF THE GT PLUS VERSION'S MOST OBVIOUS NEW FEATURES.

KIT FEATURES

CHASSIS. The new Factory Team-type chassis is one of the GT Plus version's most obvious new features. The original had slightly different dimensions and components from the Team and Factory Team kits, so replacing some parts was a little tricky. The chassis and braces for the original were unique and often hard to find. The new truck has the same, longer-wheelbase chassis and nose braces as the kit trucks, so they all have the same components now.

The screw holes on the bottom of the channeled, anodized-aluminum chassis are countersunk, so the bottom is smooth and doesn't get snagged on obstacles (and the screw heads are protected). The edges around the flywheel opening are beveled to reduce wear and tear on the starter wheel if you decide to switch to a non-pull-start engine or use a starter box with your current engine. The new nose braces and tubes are virtually identical to the kit's.

The only accessory that's obviously different is the fuel tank; it has a pressure fitting in its cap (the previous design bled fuel into the tuned pipe when you shut the engine down). This fitting also prevents the fuel from foaming in the tank—especially useful when refueling.

DRIVE TRAIN. The transmission has the same 2.6:1 ratio as the Stealth tranny used in all the GT trucks. It has an adjustable ball differential and now full ball bearings for the smoothest operation. As always, it's fitted with an adjustable slipper clutch so you can fine-tune performance and avoid damaging the tranny. Engine power is transferred to the transmission via a standard, 2-shoe, Associated clutch. I would have preferred a clutch with retainer springs to minimize the "creeping" and clutch rubbing seen at



Above: the RTR Plus's new fuel tank has a pressure fitting in its filler cap. Some racers prefer this because it helps prevent fuel foaming and fuel being pumped into the tuned pipe when the engine is shut down. Right: the RTR Plus has Ace R/C 1903MG servos in the metal gears, and they're more durable than the average servos included in RTR trucks. The servo is protected by an adjustable, chassis-mounted servo-saver that's built in to the right steering bellcrank.

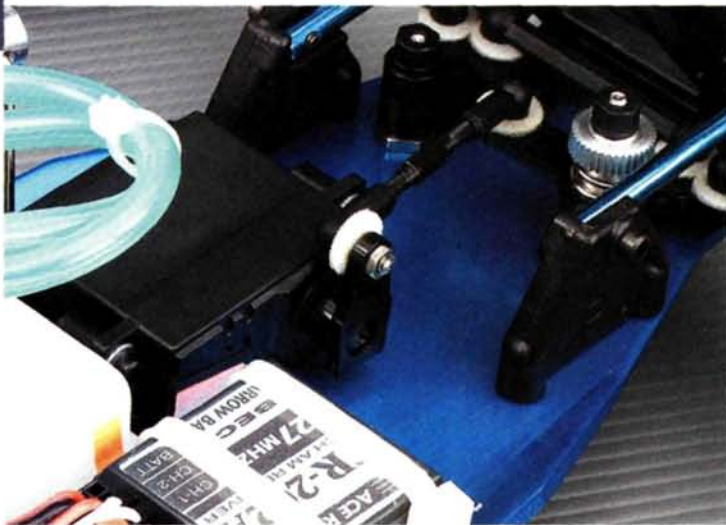
lower speeds. It's a small detail that's especially useful for those who let their engines idle for way too long, and it might help us avoid damaging the clutch by keeping the clutch shoes retracted until the engine reaches higher rpm. Granted, we aren't supposed to let our trucks sit pointing at a wall with the engines churning and the clutch bells glowing red hot, but most of us have a long laundry list of things we do that we really shouldn't.

Steel dogbones transfer power from the tranny to the ball-bearing-supported axles. The axles have the same 3/16-inch diameter as the kit trucks, so a bearing change is not required to install CVD axles in the RTR Plus.

ENGINE AND ACCESSORIES. The RTR Plus includes the same .15 ABC pull-start engine as Associated supplied with the original RC10GT. It's still among the best RTR powerplants—high quality, powerful and reliable. It features a 5.5mm rotary carb that has a low-speed and a high-speed mixture needle and a two-stage air filter. Its seven-fin cooling head cools it properly under most conditions. The throttle-return spring is a simple yet vital addition that helps prevent catastrophic damage if the radio signal is suddenly lost.

The engine's big-tube header and tuned pipe are much like those on the prior generation. A tuned pipe helps maximize the engine's power, cooling and efficiency, so it's a "plus" (pun intended) that it's standard equipment.

Though the engine is powerful, there's more power if you know where to look. If you remove the air filter, you'll see a white, molded-plastic insert in



ELECTRONICS & ACCESSORIES

Ace R/C Jaguar T2P Radio

This new digital-proportional radio is one of the RTR Plus's added-value features. This system supposedly moves the servos more accurately than the purely analog systems that are so common in RTR vehicles. The radio offers throttle and steering-trim adjustments and endpoint adjustments for both ends of the throttle-servo travel.

I found that the steering servo didn't always center well when it returned to neutral, but the throttle worked very well, and I didn't have any issues with the servo gears (a concern in the previous model). The servo gears are more durable primarily because they're S1903MG servos—and "MG" stands for "metal gears."

Rechargeable glow igniter

A clamp-style, rechargeable glow igniter and a charger are included with the GT RTR Plus. The igniter's charge always seems to last a long time, and it seems to start the engine more quickly



than the cheaper, but less effective, alkaline-cell-powered igniters.

Fuel bottle

The included 350cc fuel bottle holds nearly five tanks' worth of fuel, and it has a unique string cap retainer. Yes, you have to tie the string to the bottle and the rubber cap, but the cap stays more out of the way than conventional water-

bottle-style cap holders.

Engine-tuning video

Subtle changes in an engine's exhaust tone are clues to how you need to adjust the fuel mixture. Because this is difficult to explain in writing, Team Associated made a video: see and hear a properly tuned engine for yourself. This is a big help for newcomers who are learning how to adjust fuel mixture.

YOU'LL NEED

- 12, AA batteries for the transmitter and receiver
- 20-percent-nitro RC car fuel

FACTORY OPTIONS

- Graphite shock towers (F/R)—item nos. 7216/7656
- Factory blue titanium turnbuckles (F/R)—1401/1408
- Blue aluminum exhaust manifold (pull-start/non-pull-start engines)—7750/7758
- PTFE-coated, hard-anodized, shock bodies (F/R)—6435/6436

Blue aluminum

- Tuned pipe—7742
- Brake adapter—7561B
- Inline front axles—6220B
- Adjusting nut and tube for servo-saver—9156B
- Unobtainium shock shafts (F/R)—6417/6418

Miscellaneous tools

Even though this is an RTR vehicle, Team Associated includes most of the tools you'll need to work on it. Allen wrenches and molded nut drivers take care of most fasteners, leaving the screws to your trusty Phillips-head screwdriver.

the carburetor. This is a carb restricter that, according to Team Associated, helps to make the engine easier to tune. It broadens the tolerances of the needle settings so you don't have to spend all your time fine-tuning the carb.

The engine runs plenty strong with the 1/8-inch (3.17mm) restricter in place, but if you remove it, you open up the carb to a whopping 5.5mm, and that allows the engine to make more power. The fuel-mixture setting becomes more crucial, though, so if you're a newcomer, leave the restricter where it is. With some minor tweaks, experienced engine tuners will have this truck pulling wheelies in no time.

SUSPENSION AND STEERING. The suspension has the same design as those on previous RTR and kit trucks, but the shock towers are obviously different. On the new truck, they're molded; the previous version had fiberglass shock towers. I imagine that such changes help to keep down the truck's cost, but molded shock towers also have another valuable feature: they are more flexible than fiberglass shock towers, so they're less likely to break when the truck is on its lid. The towers are plenty strong enough to resist flexing during the usual suspension movement, but their

extra "give" in a crash makes them more durable.

Lower H-arms with adjustable turnbuckle upper links are still standard, as are oil-filled dampers at every corner.

BODY, WHEELS AND TIRES. The body is a very welcome change; it's a modern Ford F-150-look shell designed by Pro-Line and is screened in attractive blue and red paint schemes. Because this RTR chassis has the same dimensions as the kit version's, most of the aftermarket bodies designed for the kit will fit the RTR, too. The body-mounting holes and the wheel wells are in the same places. The mounting holes, tuned-pipe hole, antenna hole and the hole over the top of the engine have been cut for you, but you have to cut the hole in the front windshield (for cooling and fueling) and cut out the side windows. For additional cooling, I also trimmed out the side of the body under the "roll cage" near the engine.

The wheels are white dish hoops that came with the original RTR GT, and the foam inserts are a welcome addition. Though the tires aren't exactly high-performance racing rubber, they'll get you around a track just fine and will far outlast soft racing tires.

TEST GEAR

Sidewinder 20-percent-nitro Backyard Basher Fuel

This fuel is designed with RTR customers in mind. It has specially blended lubricants that are formulated to provide extra protection against overheating and excessive wear related to improper fuel-mixture settings. This means that you can screw up the fuel mixture more than usual and still have an engine instead of a paper-weight.



SOURCE GUIDE

ACE R/C distributed by
Ace Hobby Distributors Inc.;
(949) 833-0088;
acehobby.com.

PRO-LINE (909) 849-9781;
pro-lineracing.com.

SIDEWINDER FUELS
distributed by Morgan Fuel;
(334) 347-3525;
morganfuel.com.

TEAM ASSOCIATED
(714) 850-9342;
teamassociated.com.

PERFORMANCE

The RTR truck's straight-line performance isn't very different from the kit's, and that's a good thing. The Thunder Tiger engine is very strong, so you won't be looking for more acceleration. The engine's carb restricter softens its response and makes tuning much easier, but if you want hold-on-to-your-transmitter type acceleration, you can pull the carb restricter. Just keep in mind that the engine will be more sensitive to tuning changes.

The Plus's nimble cornering will suit average and experienced RTR drivers. Its ancestry ensures that it will cut through the corners very swiftly, but it's tame

IT WILL CUT THROUGH THE CORNERS VERY SWIFTLY,
BUT IT'S TAME ENOUGH NOT TO BE
TOO TWITCHY FOR NEW DRIVERS.

LIKES

- Metal-gear servos.
- Full ball bearings.
- Very good instructions.
- Numerous included accessories.
- Complete parts compatibility with replacement parts for Team and Factory Team trucks.

enough not to be too twitchy for new drivers. A slight, manageable, front-end understeer makes all the difference to getting out of a turn without spinning or tapping the wall, and with the stock suspension setup, bump handling is excellent. Out of the box, the suspension is tuned enough for you to take the GT Plus right out to a track and not worry about it bouncing over the bumps. Small bumps are absorbed pretty well, and big-air jumps require very little throttle input to keep the chassis flying level until it hits the ground.

THE VERDICT

Compared with the original RTR GT, the "Plus" really does offer extra value. The bearings, body, radio and chassis alone are worth the price of admission, but other features offer a value beyond any additional price you might pay. The great instructions, tuning video, fuel bottle, glow igniter, etc., are all value-added accessories that increase the truck's bang-for-the-buck ratio. Its design's predecessors show we can expect excellent performance, and the easy availability of Team Associated parts at hobby shops ensures that any required replacements will be easy to find.

DISLIKES

- Steering servo doesn't center well.
- No clutch-shoe retainer springs.



THE COMPETITION

MODEL	STARTING SYSTEM	BALL BEARINGS	DRIVE AXLES	PIPE	RADIO SYSTEM	SHOCKS	STREET PRICE	REVIEWED
Associated RC10GT Plus	Pull-start	Full set	Dogbone	Aluminum tuned	Ace Jaguar	Aluminum	\$300	10/02
Losi Triple-XNT	Pull-start	Full set	Universal	Aluminum tuned	JR XR2	Aluminum	\$339.99	08/02
Kyosho Ultima ST	Pull-start	Partial	Dogbone	Steel muffler	Kyosho Perflex	Plastic	\$199.99	08/00
HPI Rush	Pull-start	Partial	Dogbone	Plastic tuned	HPI TX-1	Plastic	\$249.99	10/00
Traxxas Nitro Rustler	Electric	Partial	Sliders	Plastic tuned	Traxxas TQ	Plastic	\$289.99	10/97

All listed trucks include aluminum chassis; 75cc tanks; adjustable slipper clutches; painted bodies and .15 engines. Price varies with dealer.

SpeedMind Daytona RS

BEFORE SIGNING WITH HPI, Atsushi Hara was briefly tied to the car you see here: SpeedMind's Daytona RS, which he used to win the inaugural International Scale Touring Car (ISTC) World Cup in 2000.

Previously unavailable in the U.S., the Daytona RS has been brought

stateside by SpeedMind. The RS

is a high-end 4WD electric touring car that features high-quality materials and has been designed to be highly tunable.

The list of its performance-driven parts

is long and

includes a

graphite chassis,

a full set of titanium

fasteners and turnbuck-

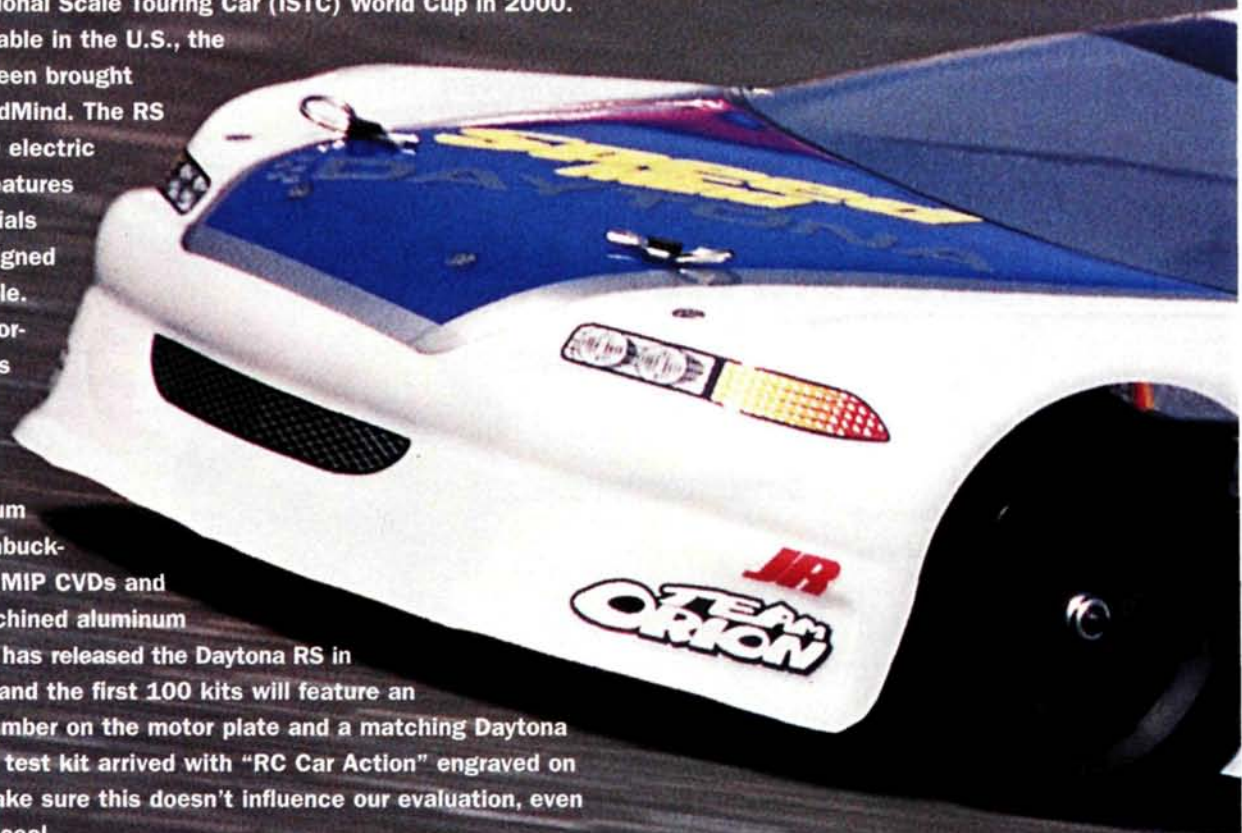
les, ball bearings, MIP CVDs and

a host of CNC-machined aluminum

parts. SpeedMind has released the Daytona RS in a limited quantity, and the first 100 kits will feature an

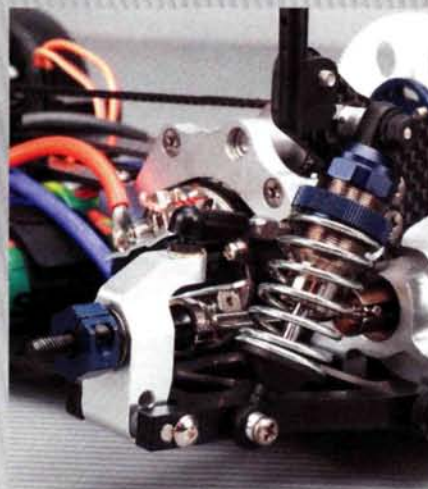
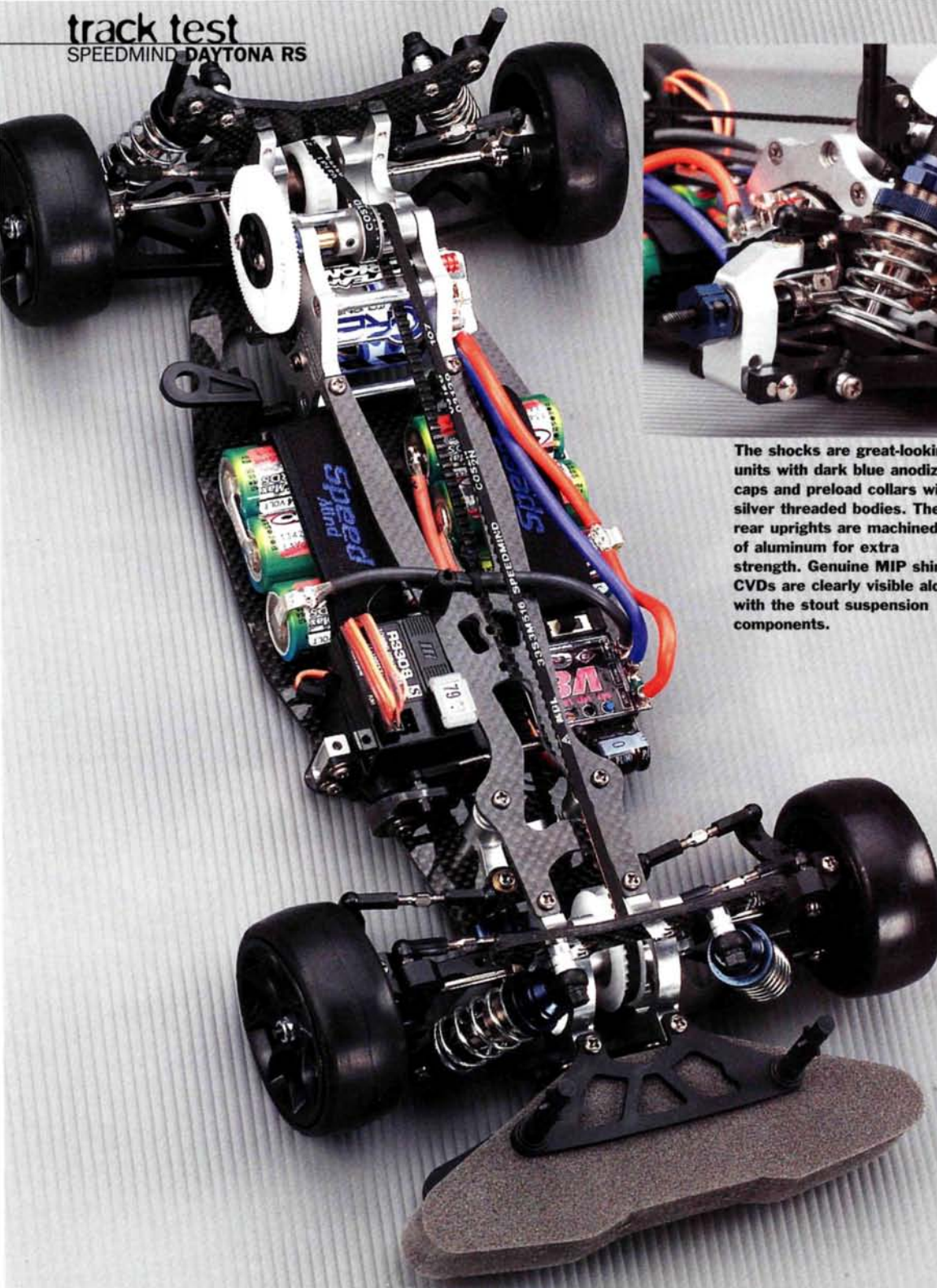
engraved serial number on the motor plate and a matching Daytona

RS key chain. Our test kit arrived with "RC Car Action" engraved on the plate; we'll make sure this doesn't influence our evaluation, even though it is super-cool.





Japan's latest
pro
performer



The shocks are great-looking units with dark blue anodized caps and preload collars with silver threaded bodies. The rear uprights are machined out of aluminum for extra strength. Genuine MIP shiny CVDs are clearly visible along with the stout suspension components.

DATA CENTER

VEHICLE TYPE 1/10-scale competition 4WD electric touring car

BEST BUYER Intermediate to competition-level RC'ers who want a full-option tourer

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Satisfactory

Parts fit and finish Very good

Durability Very good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER SpeedMind

MODEL Daytona RS

DISTRIBUTED BY Magma Intl. Ltd.

SCALE 1/10

PRICE (varies with dealer) \$350

DIMENSIONS

Wheelbase 9.8 to 9.96 in. (249 to 253mm)

Width 7.7 in. (195mm)

WEIGHT

Total, as tested 51.52 oz. (1,461g)

CHASSIS

Type Double-deck

Material 2.5mm graphite

DRIVE TRAIN

Type Dual-belt 4WD

Primary 106T spur (pinion not included)

Transmission ratio 2.13:1

Drive shafts MIP CVDs

Differentials (F/R) One-way unit, ball differential

Bearing type Metal- and Teflon-shielded ball bearings

SUSPENSION

Type Lower A-arm with adjustable camber link

Shocks Aluminum threaded-body

WHEELS

Type K-28 Impact Master Turbine

TIRES

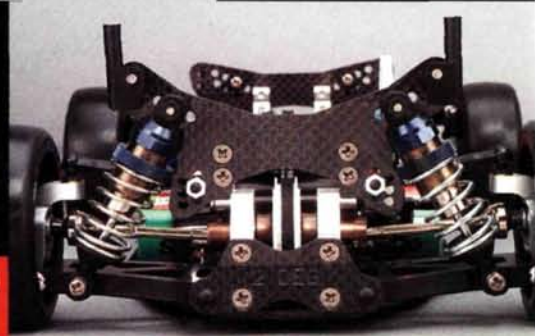
Not included



Left: the box that the Daytona RS comes in can be used as a carrying case when the kit is finished.

Right: rear toe is easily adjusted by switching the graphite plate. Each plate is marked for easy identification. Just in front of the plate is the durable Delrin diff pulley and hard-coated steel outdrives.

THE UPPER AND LOWER CHASSIS PLATES ARE PERFECTLY CNC-MACHINED OF 2.5MM GRAPHITE, AND TITANIUM HARDWARE HOLDS THE CHASSIS TOGETHER.



KIT FEATURES

CHASSIS. Only the best materials have been used for the Daytona's chassis; the upper and lower chassis plates are perfectly CNC-machined of 2.5mm graphite, and titanium hardware holds the chassis together. This is the first kit I've seen that has titanium hardware as standard equipment instead of as hop-up items. All of the screws on the underside are countersunk, and the graphite edges are smooth. The front and rear bulkheads and motor pod are machined of T6 Duraluminum with openings to reduce weight.

The chassis is designed to accommodate a 6-cell saddle pack in front of the motor pod. Instead of making you fuss with strapping tape each time you switch the batteries, the Daytona uses thin strips of hook-and-loop fastener to secure the pack. Since this touring car was bred for racing, a molded transponder holder is mounted on the right of the motor pod. A urethane bumper protects the front end and is supported on its top and bottom with stiff plastic plates.

DRIVE TRAIN. The drive-train layout is similar to the dual-belt system used by most other touring cars. A Delrin spur gear with an anodized-aluminum adapter is fixed to a layshaft that's mounted over the motor and spins the drive train.

SpeedMind spec'd a spur gear with an uncommon 56-pitch that had me shopping for a matching pinion; luckily, I discovered that Trinity's BK World gears are 56-pitch. If you want to use the 48- or 64-pitch pinions you already have, switching out the spur gear is as easy as removing two screws.

Kevlar-reinforced belts transmit power to the differentials, but only the rear unit is really a "diff"; the front belt pulley has a one-way bearing inside. There's also a one-way bearing in the layshaft pulley that gives the Daytona a "torque splitter" setup. The front and rear pulleys are made of durable Delrin and have hard-coated steel outdrive cups. Genuine shiny



MIP CVDs provide smooth power to all four wheels, and a full set of metal- and Teflon-shielded ball bearings keeps friction to a minimum.

SUSPENSION AND STEERING. Among the Daytona's unique features are its CNC-machined Delrin A-arms. In addition to their super-precise fit, the arms are incredibly stiff. The front and rear shock towers are made of 3mm-thick graphite with multiple shock and camber-link mounting locations. All four camber links use titanium turnbuckles with a choice of six mounting locations for added tuning. The A-arms use hinge pins that feature bushings at both ends so they operate freely; each arm is fastened to the chassis with a machined-aluminum mount at one end and a graphite plate at the other. The kit comes with a selection of graphite plates, each with a different design to alter the car's setting. You have a choice between two front plates to adjust caster and four rear plates to change toe angle. Aluminum shock absorbers with threaded bodies for exact preload adjustments complete the suspension.

Steering is handled by an aluminum dual-bellcrank system that is fully supported by ball bearings with a graphite drag link. Titanium turnbuckles



fitted with black ball cups connect the bellcranks to the steering knuckles.

BODY, WHEELS AND TIRES.

Like many other "pro" touring car kits, the Daytona RS doesn't include a body or tires, but SpeedMind's extra-stiff K-28 Impact Master Turbine wheels are included. The wheels are shown in our action

shots, but for testing, I installed a set of SpeedMind's new mounted and trued foam tires. They are available in 26mm, 28mm and 30mm widths, and the compound is measured in shore density. I chose the 26mm with a 40 shore—the medium density. For the Daytona's body, I opted for Trinity's Reference Stratus "Y" asphalt body; it has an aggressive front end designed to give maximum steering.

Above: titanium turnbuckles make suspension tuning easy, and the many shock and camber-link mounting locations provide extra tuning options. The clamp type wheel hexes will stay put when swapping off wheels. **Left:** like the rest of the aluminum parts, the motor pod is perfectly CNC-machined. The first 100 kits will have a number engraved where you now see the words "RC Car Action."

BUILDING & SETUP TIPS

The spiral-bound instruction manual is beautifully presented with computer-generated color illustrations, but it lacks detailed explanations for some of the less obvious steps, and the exact hardware required for certain steps wasn't clear. When you assemble the Daytona, have a metric ruler and a set of calipers on hand to measure the fasteners; this will ensure that you use the correct hardware. If you have experience building RC cars, the Daytona RS will go together fine; just be sure to take your time.

STEP 1. When you have finished building the diffs, make sure that they spin smoothly. Any roughness you feel can hurt performance on the track.

STEP 3. Check the chassis—especially the battery slots—for rough or sharp edges. Sharp graphite cuts very easily.

TUNING. Since this car has many tuning adjustments, remember to make only one change at a time and then test the car; you'll know whether the change was a benefit or a detriment to its handling.

USE THREAD-LOCK. The manual doesn't mention the use of thread-locking compound, but I like to be on the safe side, so I used it on all the hardware that is fastened into aluminum components. This is especially important on the setscrews that hold the center pulley and spur-gear adapter in place. You don't want to lose any of the expensive titanium hardware!

YOU'LL NEED

- Transmitter and receiver
- Motor
- Electronic speed control
- Steering servo
- 6-cell battery
- Charger
- 190mm body
- 56-pitch pinion gear
- Tires
- Servo-saver
- Tire glue
- Shock fluid

FACTORY OPTIONS

- Machined Delrin caster-block carriers (pair)—item no. DA-1007-S1
- Aluminum steering-knuckle arms (pair)—DA-1008-S1
- Hard-coated kingpin bushings (4 pieces)—DA-1009-S1
- F-1 Tech lightweight-carbon main chassis—DA-5001-S1
- F-1 Tech redesigned upper deck (more flex)—DA-5002-S1
- Redesigned carbon front shock mount—DA-5003-S1
- Redesigned carbon rear shock mount—DA-5004-S1

Partial list; additional parts are available.

Team Orion Core Touring modified motor and RC3000HV V-Max Plus Team Matched batteries

Team Orion's Core Touring motor shares many features with the powerful Core Modifieds, but it has been adjusted to suit touring cars. Zero-gravity epoxy-balancing, dual ball bearings and an Ultra Flow can and endbell are carried over to the Core Tourer; the major differences are the all-new G12 wet magnets and a new, lighter armature for better low-end torque.



The Sanyo RC3000HV (High-Voltage) V-Max Plus Matched batteries combine high voltage and extreme capacity. These new cells maintain a significantly higher average voltage and lower internal resistance than other Orion cells. They are available in three grades—club, racer and team—to suit budget and performance requirements.

Additional items used to complete the SpeedMind Daytona RS

GM Racing V8 ESC

JR Racing R1 FM pistol-grip transmitter

JR Racing Z8450 Ultra Speed digital steering servo

JR Racing R330 3-channel S-PCM micro receiver

I tested the Daytona with its stock setup. This is always a good starting point because the car's designers have determined the setup that will work best for most track conditions. When you have a feel for the car, you can finely tune the chassis to suit your driving style. With the Team Orion batteries charged, it was time for some hot laps.

The Daytona accelerates well off the line and tracks straight, even with overly aggressive throttle input. This tourer hits top speed quickly, but its top speed largely depends on your choice of batteries, motor and ESC. The Team Orion Core Touring motor performed excellently; it had plenty of torque coming out of corners and enough top end to stay up front.

The drive train proved to be quiet and virtually friction free. Coming off the throttle, the car seemed to coast endlessly. It makes powered turns of equal radius in either direction, and transition handling wasn't a problem. Switchback turns and even evasive maneuvers when passing lap traffic didn't unsettle the chassis. The RS has plenty of on-power steering with slightly less steering when exiting corners. This trait fits my driving style because I tend to push too hard and then spin out; with the Daytona, the rear end stayed planted.

SpeedMind's new foam tires take some of the credit for the car's surefooted behavior. I was able to put the RS almost anywhere on the track without its losing traction, and at the end of the day, tire wear was minor. Nothing broke during my tests, but I didn't have any head-ons into the boards—just the occasional broadside wall taps. Considering the quality of the materials used and its history on the racetrack, the Daytona should hold up just fine. In the box-stock setup, the Daytona performed exceptionally well on the track I tested it on, and I'm confident that with more track time, I could get it into the A-main!

LIKES

- Top-quality materials.
- Highly tunable.
- Loaded with hop-ups.

THE VERDICT

It only takes a glance at the beautifully CNC-machined graphite chassis and aluminum bulkheads to see that the SpeedMind Daytona RS is designed for racing. My first impressions proved to be more than accurate. The high quality of the materials, the number of included hop-ups, the fully tunable chassis and its great track-handling characteristics make the Daytona RS a winning package. I would like to have seen some additional setup suggestions for a variety of track conditions, but the car's design isn't complicated, so dialing it in should not be a problem for anyone with racing experience. Making the step up to a no-compromise touring car like SpeedMind's Daytona RS will take a chunk out of your wallet, but it's proof that the saying, "You get what you pay for" is right on the money.

DISLIKES

- Instruction manual needs more supporting text.
- Feature-packed, but expensive.

SOURCE GUIDE

GM RACING distributed by Horizon Hobby.

HORIZON HOBBY (217) 355-9511; horizonhobby.com.

JR RACING distributed by Horizon Hobby.

SPEEDMIND distributed by Magma Intl. Ltd. (905) 886-1808; magmarc.com.

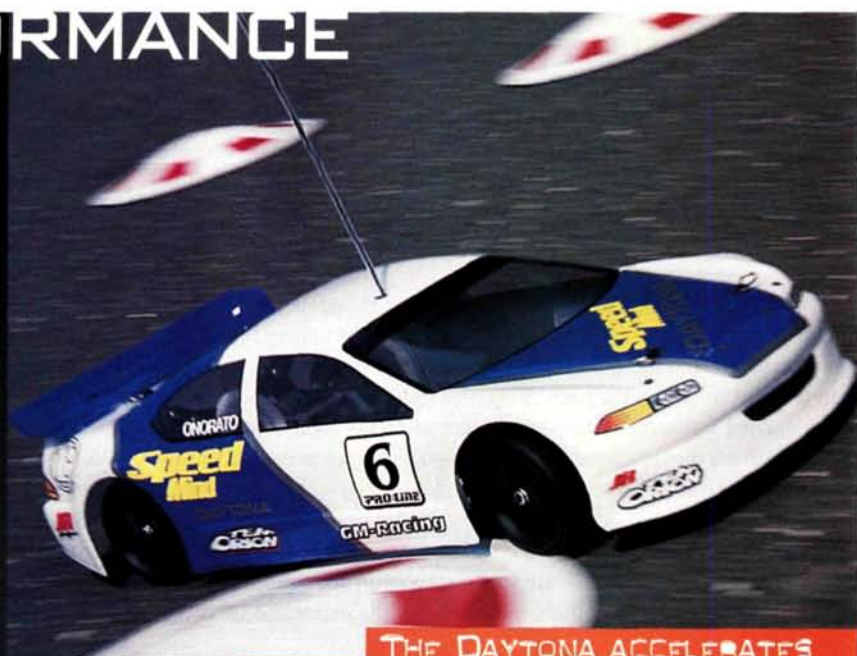
TEAM ORION INC. (714) 694-2812; team-orion.com.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

THE COMPETITION

MODEL	CHASSIS	DRIVE TRAIN	SHOCKS	DIFFERENTIALS	AXLES	STREET PRICE	REVIEWED
Associated Factory Team TC3	Molded semi-tub	Shaft	Aluminum threaded-body	Ball	MIP CVD	\$300	12/01*
MRC Academy STR-4 Pro	Graphite plate	Shaft	Aluminum threaded-body	Ball	Universal	\$220	12/01*
SpeedMind Daytona RS	Graphite plate	Dual-belt	Aluminum threaded-body	One-way/ball	MIP CVD	\$350	10/02
Tamiya TB Evolution II	Graphite plate	Shaft	Aluminum threaded-body	One-way/ball	Universal	\$419	8/02
Team Losi Triple-XS	Molded semi-tub	Single-belt	Aluminum	Ball	Universal	\$220	12/01*
XRAY T1	Graphite plate	Dual-belt	Plastic threaded-body	Ball	Universal	\$325	12/01*

Partial listing; category is too large to include all vehicles. Prices vary with dealer. *Pro Touring Car Smackdown.



THE DAYTONA ACCELERATES WELL OFF THE LINE, AND IT TRACKS STRAIGHT, EVEN WITH OVERLY AGGRESSIVE THROTTLE INPUT.

Megatech Tempest Gladiator RTR

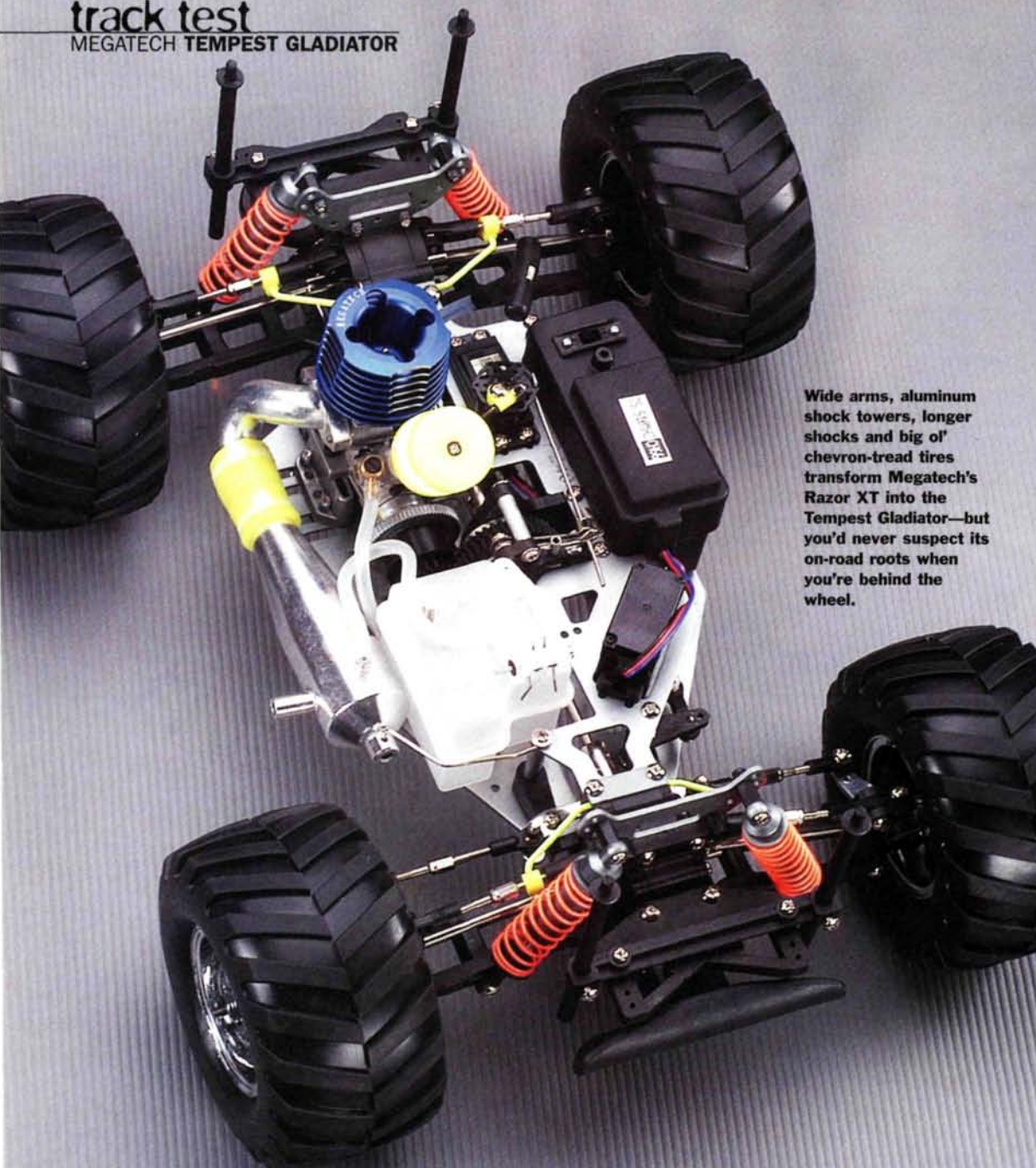
IF YOU'RE A FAN OF THE MEGATECH RAZOR XT READY-TO-RUN, you're sure to like Megatech's newest nitro burner—the RTR Tempest Gladiator. At first glance, the Razor XT's slammed street stance and the Gladiator's high-riding monster-truck profile make them look like completely different vehicles, but their double-deck chassis, 2-speed shaft-drive systems and M-16 pull-start engines are identical. To shift the Razor platform into Gladiator mode, the chassis was outfitted with long suspension arms and matching shocks, 2.2-inch wheels (with chevron-tread tires) and a factory-painted flatbed body. Based on my experience with the Razor XT (I reviewed it for the December 2001 issue), I was confident that the Tempest Gladiator would, at the very least, be very fast—just how fast, and how well it would take that speed to the dirt, is what I planned to find out.



Razor performance



in a
**MONSTER
PACKAGE**



Wide arms, aluminum shock towers, longer shocks and big ol' chevron-tread tires transform Megatech's Razor XT into the Tempest Gladiator—but you'd never suspect its on-road roots when you're behind the wheel.



Left: the Tempest Gladiator's M-16 engine looks good and performs even better. Note the 2-needle slide carb and tubular header. Megatech does a good job of assembling the truck, as indicated by small details such as the zip-ties on the air filter.

Right: with the exception of the engine-mounting screws, the Gladiator's chassis screws are countersunk. The ladder-shaped suspension arms are interchangeable (left to right and front to rear). Check out the rear bumper; it doubles as a handle.



DATA CENTER

VEHICLE TYPE RTR, 4WD, nitro-powered 1/10-scale monster truck

BEST BUYER Nitro fans interested in fast monster truck action

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Satisfactory

Parts fit/finish Good

Durability Very good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER Megatech

MODEL Tempest Gladiator

SCALE 1/10

STREET PRICE \$380

DIMENSIONS

Wheelbase 10.2 in. (259mm)

Width 12.5 in. (318mm)

WEIGHT

Total, as tested 55 oz. (1,559g)

CHASSIS

Type Double-deck plate

Material 2mm aluminum

DRIVE TRAIN

Type Enclosed shaft-drive

Transmission 2-speed

centrifugal, drive-dog type

Drive shafts Universal-joint, CV type

Differentials Bevel gear

Bearing type Metal-shielded ball bearings

ENGINE & ACCESSORIES

Type Pull-start Megatech M-16

Manifold Bolt-on

Pipe Neo satin-finish aluminum

Fuel tank 100cc with primer

SUSPENSION

Type Lower H-arms with

turnbuckle camber links

Shocks Aluminum, threaded-body

WHEELS

Type 2.2 in., one-piece chrome-plated

TIRES

Type Megatech chevron treads with foam inserts

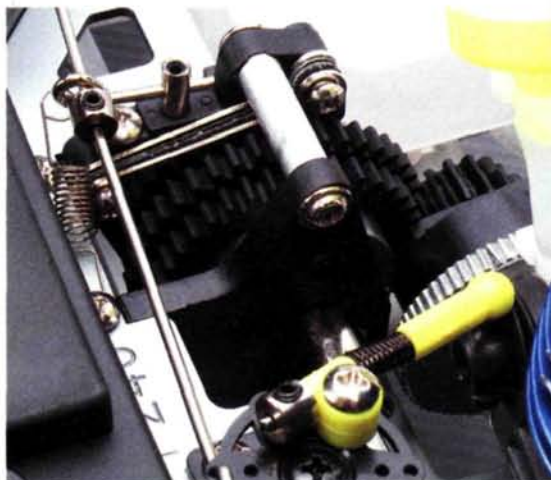
THE GLADIATOR IS BUILT AROUND A DOUBLE-DECK CHASSIS CONSTRUCTED OF 2MM-THICK ALUMINUM PLATE.

KIT FEATURES

CHASSIS. The Gladiator is built around a double-deck chassis constructed of 2mm-thick aluminum plate. That's thinner than the 2.5 or 3mm plate most other nitro cars use, but the Gladiator's expansive upper deck and the many standoffs and bulkheads that join it to the lower chassis plate add considerable stiffness. The upper deck is home to the steering and throttle servos as well as to a huge receiver box that encloses a 4-cell battery holder and the receiver itself. The servos and box are all held on the left side of the chassis to give clearance for the truck's shaft-drive system, and this position also helps offset the weight of the fuel tank and M-16 engine on the opposite side of the chassis. A small front bumper wards off head-on hits, and the truck's rear bumper is shaped to double as a carrying handle.

DRIVE TRAIN. Like an 1/8-scale nitro buggy, the Gladiator uses dogbone drive shafts to spin front and rear gear differentials via steel ring-and-pinion gears. But instead of a center diff, the drive shafts meet a 2-speed transmission in the chassis' center that features a pair of Delrin spur gears and an adjustable, drive-dog type shifting mechanism. The tranny's plastic spur gears seem disappointing from a spec-chart point of view, but they have proven themselves in the Razor; Delrin is tough stuff. Metal-shielded ball bearings are standard (anyone sad to see bushings go away from the "sport" RC scene? I didn't think so), and universal-joint axles patterned after MIP's classic, often copied CVDs are found in the front and rear. Friction-fit drive hexes engage the truck's wheels, and they surprised me with their reliability when I tested the Razor (friction-fit hexes are usually prone to loosening). The Gladiator's big wheels will test the drive hexes' grip, but hopefully, they'll stay put. (I'll keep my nut driver handy just in case.)

Right: the 2-speed transmission is equipped with slim Delrin gears that are impressively tough. The Tempest Gladiator has the same gear ratios as the Razor XT touring car—on the tall side for off-road use (but the truck sure is fast!).



The Gladiator's disc brake is squeezed in front of the 2-speed tranny and uses thinly padded calipers to grab a 36mm rotor. The large-diameter rotor gave the Razor plenty of wheel-locking power, and it should easily stop the heavier Gladiator.

SUSPENSION AND STEERING. Long H-arms paired with steel, turnbuckle camber links give the Gladiator a wide, monster-size stance, and cast steering knuckles held in plastic C-carriers keep the front wheels pointed in the right direction. Steel turnbuckles are used here, too, and they connect the knuckles to the Gladiator's dual-bellcrank steering system. A non-adjustable servo-saver is built in. Given the truck's off-road-beater mission and the included standard steering servo, you'll probably want maximum "saving" anyway.

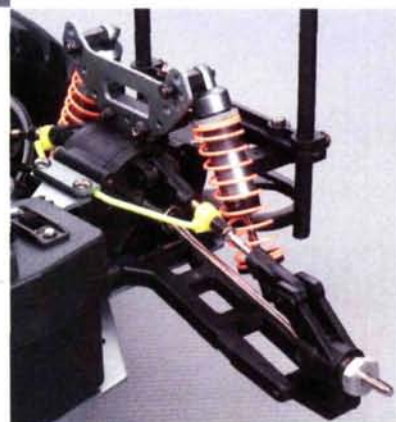
Threaded-body, gray-anodized, aluminum shocks suspend the truck; they are fitted with relatively stiff springs, but the suspension doesn't feel

quite as stiff as the spring rates would suggest it should. The shocks are mounted well inboard on the arms, so the arms have more leverage to compress them. Non-adjustable front and rear swaybars are standard, and they're cleverly fitted to the upper camber links with plastic clips.



Above: cast steering knuckles are standard. Clever plastic clips attach the swaybars to the steel-turnbuckle camber links.

Right: both ends of the truck are suspended by threaded-body aluminum shocks and use friction-fit drive hexes to hold the wheels. You can also see the telescoping body posts that allow you to slam the Gladiator's body or lift it as high as you like.



ENGINE AND ACCESSORIES. The Gladiator would run fine with a .12 engine, and a .15 would have been on a par with the rest of the nitro-truck world, but Megatech went the extra .01 cubic inch and spec'd a .16 for the Gladiator. It's the Megatech M-16 to be

ELECTRONICS & ACCESSORIES

Airtronics Blazer Sport transmitter and receiver

Airtronics' reliable but no-frills Blazer Sport is standard equipment in many RTRs, and it serves the Gladiator well. I was pleased to find the reversing switches and trims properly set from the factory, and the linkages had been set for bind-free operation. This is important, since the transmitter does not have the independent endpoint adjustments that would be required to dial out any unwanted servo travel.



Airtronics 94102 steering and throttle servos

These are Airtronics' time-tested budget servos, and they worked well in the Gladiator. While the truck's large tires and tenacious 4WD system no doubt taxed the steering servo, it never failed to keep the truck on its commanded course. As for braking, the 94102 servo was more than sufficient for fast, full-power stops.

YOU'LL NEED

- Fuel
- Fuel bottle
- 12 AA alkaline batteries

FACTORY OPTIONS

- Delrin parts
- Front knuckle arms—item no. 22211
- Rear knuckle arms—22212
- C-hubs with bushings—22304
- Machined-aluminum parts—natural; colors available
 - Front/rear gearbox (fits front and rear)—22220
 - C-hubs with bushings—22224
 - Front knuckle arms—22225
 - Rear knuckle arms—22226
 - Center gearbox—22227
 - Body mount (fits front and rear)—22576
 - Suspension arms (fits front or rear)—22587
 - Bumper (fits front or rear)—22588

precise; it's claimed to produce more than 1hp and is also offered separately (and with slightly different porting) as a hop-up engine for the Traxxas T-Maxx. It's a hot engine and a big step up from the single-needle, cast-head budget mills included with some RTRs. In addition to its ABC construction, machined connecting rod, nicely anodized heat-sink head and pull-starter, the M-16 has a 2-needle slide carb with return spring and a heavy-duty 3-shoe clutch. The high-quality exhaust package was culled from Megatech's Neo line. The satin-finish aluminum pipe and bolt-on manifold are genuine high-performance parts, and their good looks definitely increase the truck's tough-guy appeal.

Naturally, the free-breathing, large-displacement engine will sip fuel more quickly, but your pit-stop schedule shouldn't change much thanks to the 100cc

fuel tank (most small-block nitro cars have a 75cc tank). On the downside, the tank's opening is small and in the middle of the chassis, and that makes for slow pit stops (hardly a tragedy, since this isn't a race truck, but I'm picky like that).

BODY, WHEELS, AND TIRES. True to its name (or at least the "Gladiator" part), the Tempest Gladiator's flatbed body is factory-festooned with decals bearing a variety of stud, rivet, shield and armor motifs (but sadly, no vengeful Russell Crowe behind the wheel). In addition to painting and decaling the shell, Megatech also trims and mounts it for you.

Chrome, deeply offset wheels and thick-tread chevron tires complete the monster look, and thanks to a factory CA job, you won't have to risk super-gluing your thumbs to the sidewalls before you hit the dirt.

Megatech High Velocity 25% Nitro

Megatech's blue fuel uses a mix of natural castor oil and synthetic Syntol oil for lubrication; this is claimed to reduce heating, lessen residual oil buildup and extend bearing life. Exactly how well it succeeds in those goals is hard to quantify, but based on the fuel's practical performance, it's definitely good stuff. I also like the fuel's convenient pint bottle with flip-top pouring cap—no need for a separate filler bottle.



PERFORMANCE

I PUSHED THE GLADIATOR TO JUST OVER 45MPH—EXTREMELY FAST FOR A BIG-TIRE, 4WD MONSTER TRUCK.



There weren't any surprises when starting and breaking in the M-16 engine, so let's get right to the good stuff. Despite the Gladiator's obvious off-road mission, my first stop was a parking lot where I'd be able to run it wide open. Off the line, it squats slightly and launches hard, but it won't break the tires free—not surprising, given the 4WD system

LIKES

- Very fast.
- Features, features, features. Bearings, universals, tuned pipe, 2-speed, more.
- Completely RTR, including glued tires and a painted, trimmed, decaled and mounted body.

and tall first-gear ratio (remember, the Gladiator has the same ratios as the Razor XT touring car, which has much smaller wheels). That the truck moves out aggressively at all is a testament to the M-16's low-end grunt, which is considerable. I kept my finger on the trigger until the M-16 wound out, and much to my surprise, the 2-speed transmission up-shifted just as the

engine's output was flattening out. I wasn't surprised that the transmission worked, but I was surprised that the shift point had been properly set! I wouldn't fault the truck if it hadn't been set properly, as there's no way to set it accurately without running the truck, but I was happy at my good luck.

Back to the action. With the Gladiator building speed in second gear, the parking lot appeared to be shrinking rapidly. I carved a wide turn to bring the truck around and discovered it had a little on-power push and a surprisingly flat cornering attitude—at least, by monster-truck standards (chalk it up to those front and rear swaybars). As the truck shifted back into second for the return trip, I stayed on the gas for a full-speed pass. As I made course corrections at top speed, the wheels' considerable gyro effect made the steering feel a little numb,

and that tempted me to feed in more steering. By the time the chassis "caught up" with the steering input and I realized I had overcooked it, I had to countersteer to get the truck back on course. I thought it would swap ends, but I managed to settle it down. At top speed, a little steering goes a long way, so be careful! With "Less is more" in mind, I made a few full-throttle passes for the radar and pushed the Gladiator to just a tick over 42mph—extremely fast for a big-tire, 4WD monster truck.

In the dirt, the tall gearing made the Gladiator work a little harder when climbing obstacles than it would have to with easier ratios, but the M-16 kept slugging. On low-traction surfaces, the gearing actually helped the truck by making it more difficult to light up the tires, but when it got on the pipe, the Gladiator almost always broke traction at one corner or the other; a chevron tire can hold back only so much power and rpm! Rough terrain was easily soaked up by the aluminum shocks, and they were aided by the built-in suspension action of the truck's tall-sidewall, foam-supported tires. After running my tests, I remembered that I was supposed to keep an eye out for loose drive hexes. I guess they stayed put!

THE VERDICT

Megatech got the fun-truck formula right with the Tempest Gladiator. It's powerful and fast, it handles well by monster truck standards (you can't judge big-tire trucks against race trucks) and it's feature-laden. With its aluminum tuned pipe, full bearing set, 2-speed tranny, universal-joint axles and complete ready-to-run treatment, the Tempest Gladiator is about as well-equipped as a nitro truck can be, but the real star is its M-16 engine. No matter how fully featured, good-looking, or well-built a nitro vehicle is, if its engine is a dog, the vehicle is a dog. The M-16 definitely doesn't have any canine qualities. It started easily, idled reliably, wasn't too picky about its carb settings and made piles of power. I appreciate all the Gladiator's features, but the M-16 is what puts it over the top.

DISLIKES

- Photocopied instruction manual has some good operating info, but the presentation is low-rent.

SOURCE GUIDE

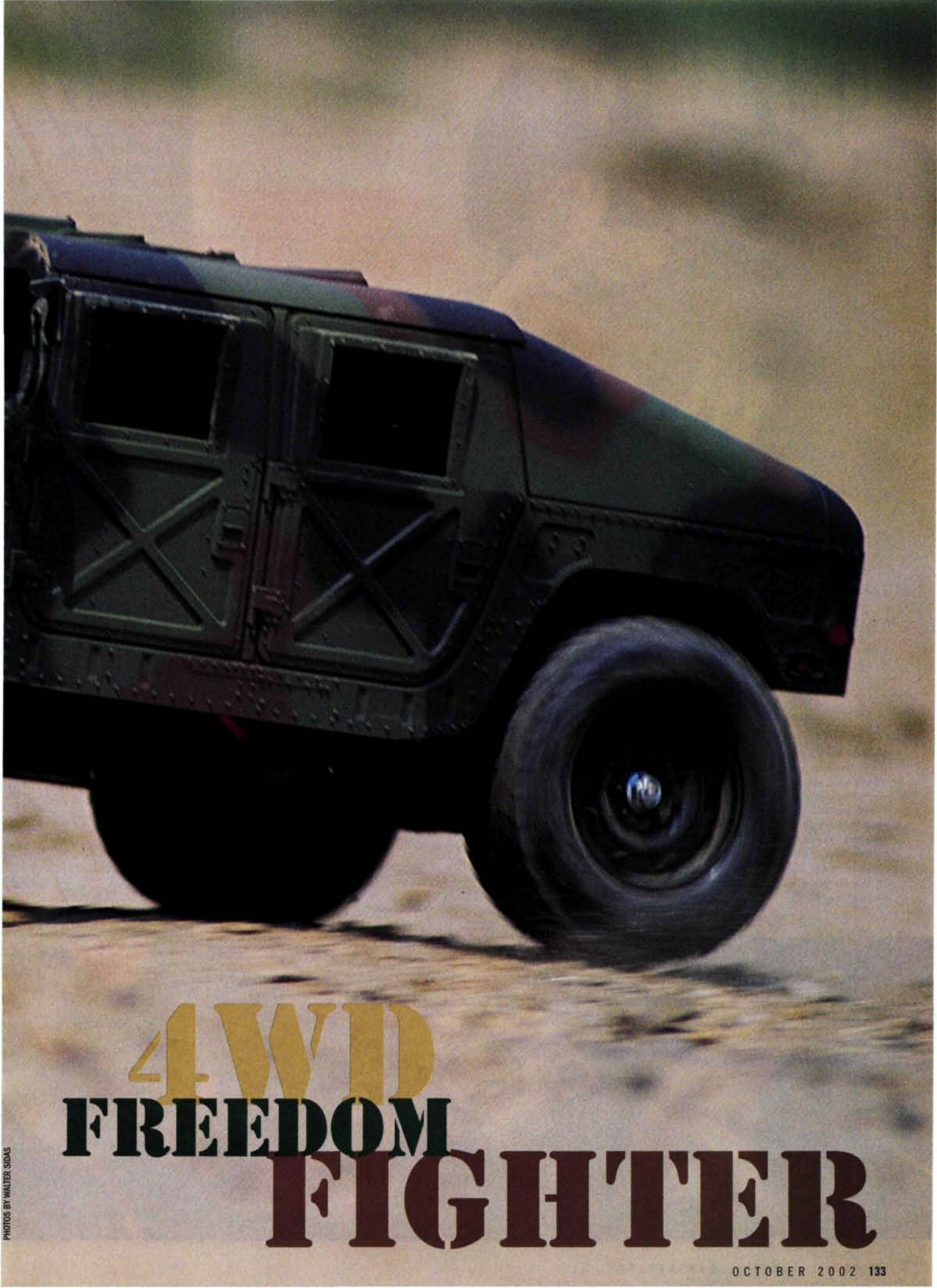
MEGATECH INTL. (201) 662-8500, ext 115; www.megatech.com.
AIRTRONICS (714) 978-1895; airtronics.net.

Tamiya M1025 Humvee XB



FORGET YOUR FRIEND'S TACOMA WITH THE TRD SUSPENSION, your brother's F-150 with the Rancho kit, or that guy at the service station with the weird Camaro body on a Bronco-chassis thing. The ultimate off-road vehicle is the military-spec Humvee, which is a loose pronunciation of HMMWV—that's "High Mobility Multipurpose Wheeled Vehicle," for those of you who don't speak acronym. We only catch glimpses of them rumbling down the highway in conspicuously law-abiding 55mph convoys (or in civilian trim as the Hummer H1), but AM General's masterpiece of military muscle is always ready to blow off the blacktop and tackle the worst terrain.

Fittingly, Tamiya's RC version of the Humvee is equally ready to do it in the dirt, especially now that Big T has added everyone's favorite army-man mover to its line of XB (as in "eXpert Built") ready-to-run vehicles. The "hard" injection-molded body of the long popular Humvee kit is carried directly to the XB truck, but the chassis is the new (sort of) DF-01—a revision of Tamiya's 4WD Manta Ray/TA-series platform. Grab the wheel, soldier!



4WD
FREEDOM
FIGHTER



TAMIYA ADDED SOME OLD-SCHOOL, ALL-WEATHER PROTECTION FOR THE ELECTRONICS.

Below: here's what goes on in the rear gearbox. There's no way to see the pinion/spur-gear mesh, so the motor is mounted on an indexing ring that aligns the pinion—not that you have to worry about it; the Humvee is completely RTR.

Below: remove two screws, and the hatch lifts out for receiver and speed-control access. The enclosed chassis does a good job of keeping dirt out of the works, but fine dust can still find a way in.

DATA CENTER

VEHICLE TYPE 4WD electric off-road military vehicle

BEST BUYER Humvee fans and first-time drivers

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Good

Parts fit/finish Excellent

Durability Very good

Overall performance Excellent realism, satisfactory for sheer off-road ability

SPECIFICATIONS

MANUFACTURER Tamiya

MODEL DF-01 M1025 Humvee

SCALE 1/12

STREET PRICE \$245

(varies with dealer)

DIMENSIONS

Wheelbase 11.2 in. (285mm)

Width 8 in. (205mm)

WEIGHT

Total, as tested 67.4 oz. (1,911g)

CHASSIS

Type Enclosed tub

Material Injection-molded plastic

DRIVE TRAIN

Type Full-time shaft-driven 4WD

Primary Pinion/spur gear

Drive shafts Steel dogbones

Differentials Bevel gear

Bearing type Plastic and metal bushings

SUSPENSION

Type Lower H-arm with one-piece camber links

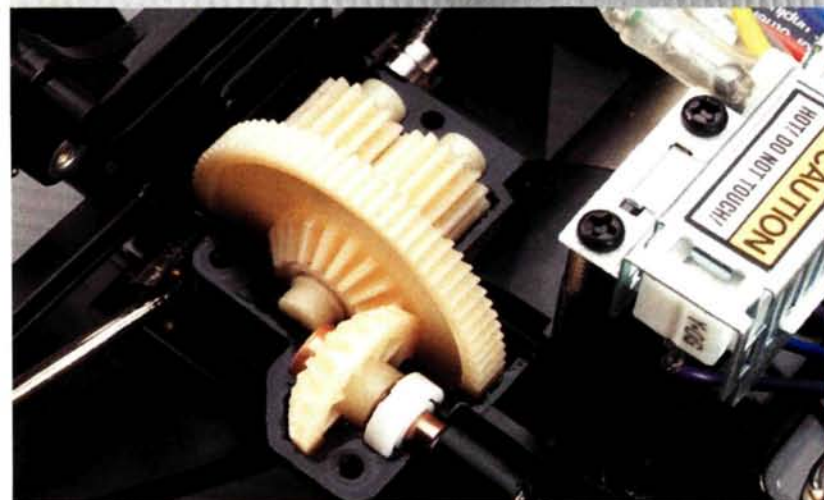
Shocks Plastic-body coil-over, undamped

WHEELS

Type One-piece plastic, military dish

TIRES

Type Hard rubber, scale tread



KIT FEATURES

CHASSIS. Tamiya's affection for tub-style, injection-molded chassis goes way back, and the basic premise works as well today as it did on the Holiday Buggy. For the DF-01's tub, Tamiya added some old-school, all-weather protection for the electronics in the form of a solidly attached clear-plastic cover that protects all the electronic gear. A hatch within the cover allows access to the receiver and mechanical speed control by removing two screws, or you can remove the entire cover by taking out three screws. Only the battery pack (not included, by the way) is left relatively exposed; it slides into a tunnel in the chassis and is locked in by a swing-off door. I don't suggest you submerge the chassis, but a splash won't hurt it.

DRIVE TRAIN. Manta Ray, Dirt Thrasher, Terra Conqueror, TA-01, TA-02: if you've owned any of these cars, you're already familiar with the DF-01 drive train. The 4WD system these vehicles share is still pretty cool, even after more than 10 years of production. The front and rear transmissions can be removed from the chassis with the suspension systems intact, and each gearbox has a pair of hatches: one for access to the gears in the top of the tranny and another that allows the differentials to drop out. The diffs are Tamiya's ageless and indestructible 5-gear bevel units (which means you'll probably never need to use the aforementioned access hatch), and they are spun by a system of counter-gears and bevel gears linked by a wire propeller shaft that spans the chassis from gearbox to gearbox. The rear gearbox is home to the included 540 motor and uses a clever mounting ring to index the motor according to the size of the pinion gear used, so setting the gear mesh is foolproof. Steel dogbones get the spin out to the stub axles, and a mix of plastic and metal bushings keeps everything turning smoothly, if not as efficiently as bearings might.

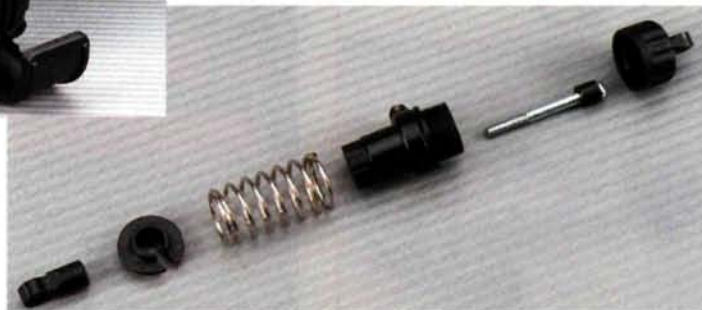
SUSPENSION AND STEERING. Like Tamiya's TL01 touring car and some of its other kits, the Humvee's DF-01 chassis uses two-piece suspension arms

on all corners. The suspension arms pivot on screw pins in the rear of the car, while the front arms are secured by a wire yoke; think of it as two hinge pins joined to form a "U." The arms are paired with one-piece molded camber links that are attached to the chassis with smooth-shouldered pivot screws; not exotic stuff, but functional and guaranteed not to pop off in a crash. The steering knuckles are held in place by C-shaped carriers and large-diameter kingpins, and threaded rods connect the knuckles to a pair of bellcranks joined by a Z-bend drag link. The bellcranks don't incorporate a servo-saver; it's mounted directly on the steering servo instead.

The Humvee appears to have the same oil-filled, plastic-body, coil-over shocks as many of Tamiya's other kits, but the sealing components are left out; there's no bladder under the cap and no O-ring seals in the shock bodies. Adding these parts would allow the shocks to hold damping fluid, but for the shocks to actually produce damping force, pistons are required. That calls for new shock shafts, as the stock shafts are not slotted for the E-clips needed to secure pistons. If you just gotta have damping, it will be easier (and probably cheaper) to simply get a complete set of new shocks. But this is all experienced-RC-guy stuff; for the typical XB buyer, the undamped shocks are just fine.



Above: you'll probably never need to remove the Humvee's diffs, but if you do, they're very easy to get at. Heck, I take 'em out just for fun. **Right:** looking inside the Humvee's shocks reminds me of the Tin Man—no oil. Don't call them "friction dampers," though; there really isn't any damping.



BODY, WHEELS AND TIRES. Here's where the Humvee really stands out. Tamiya is well known for its bodies in general, but the down-to-the-last-rivet detail of the Humvee's injection-molded "hard" body only gets more impressive the closer you look. The main body is one piece, but the smoked window inserts, headlights, air-inlet cover and top hatch are molded separately and installed for you. The only parts left for you to add are the rearview mirrors, which are attached with body clips. An airbrushed camouflage paint job completes the body with a realistic matte finish. Body clips hold the rear of the body in the usual way, but the body's nose is left unmarred by un-scale body-post holes, thanks to plastic cleats that secure

ELECTRONICS & ACCESSORIES

Tamiya AdSpec GP transmitter

The AdSpec GP is a no-frills transmitter with only servo-reversing and trim adjustments, but it is a very reliable and rugged radio, and that's what counts most. A bright red LED keeps tabs on the transmitter's battery condition, and the wheel and trigger travel smoothly. While not a feature-packed radio, the AdSpec GP is well built and worth transferring to another vehicle, if you decide to give the Humvee a break.

Tamiya TP-S3003 servos

Tamiya's standard-type servos are good for about 40 oz.-in. of torque; that's enough to give the Humvee all the steering it can handle, and way more than enough for the easy job of actuating the mechanical speed control. If you upgrade your Humvee to an ESC, you can put the TP-S3003 that you'll liberate from the chassis to good use in a second car.

3-step mechanical speed control

Thanks to the Humvee's fully enclosed chassis, the included 3-step controller stays clean, and that means it operates with far greater reliability than mechanical speed controls are usually known for. I'll always prefer an electronic speed control, but as a

YOU'LL NEED

- Eight AA batteries
- 6-cell stick pack
- Charger

cost-savings solution, the MSC is a good choice, and as long as the Humvee has full throttle, Joe Beginner will be lovin' it.

Mabuchi 540 motor

I usually say silver-can stockers are merely good enough for first-timers, but the Humvee moves out nicely with 540 power. I wouldn't say no to more "go," but I had no trouble milking a ton of fun out of the truck as is, especially with the long run times (16 minutes per charge with a Trinity Time Warp pack was no problem).



the hood from below, out of sight.

The Humvee's tires resemble those of Tamiya's 4WD desert truck series and the Blazing Star buggy but are actually unique to the military machine. The tall-sidewall tires are mounted on realistically styled, one-piece wheels. The tires aren't glued to the rims, but the plasticky rubber fits the wheels so tightly that glue isn't required.



Tamiya also offers the Humvee's DF-01 chassis in buggy trim as the Manta Ray XB (top) and Neo Top Force XB (above), which are identical beneath their futuristic bodies. Both are equipped with the same AdSpec radio gear as the Humvee, but they differ in the suspension department: longer arms, longer shocks and taller shock towers. These changes give the Neo Top Force and Manta Ray more suspension travel, but like the Humvee, their undamped shocks deliver a bouncy ride.

Trinity Time Warp 6-cell pack

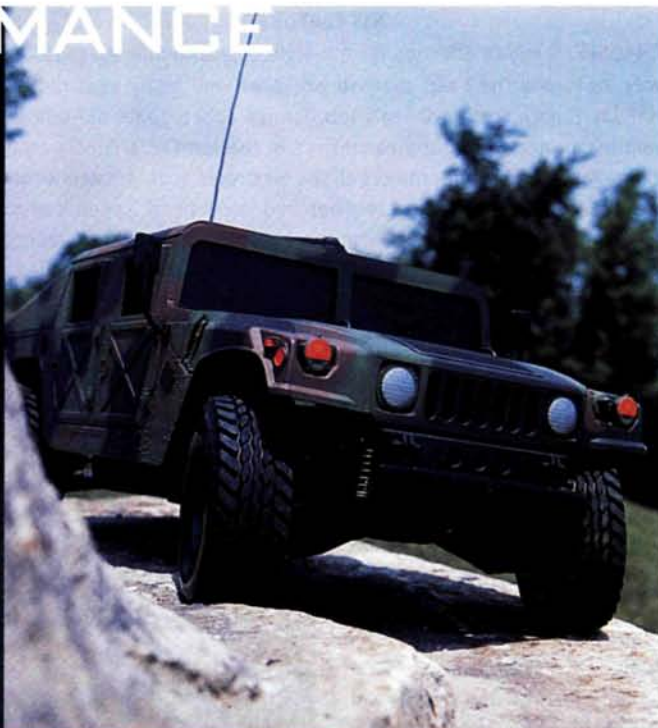
Trinity's Time Warp pack uses Ni-Cd cells, so you can charge it with even the most inexpensive "timer" charger, and with 1900mAh of capacity, the Humvee had run time to spare. Soft silicone-insulated wires are a nice step up from the stiff, thin-gauge wire included with some other brands of sport batteries, and a Tamiya-type connector is included (of course).



PERFORMANCE

For a 4WD truck powered by a sealed-endbell 540 motor, the Humvee actually has pretty good scoot, especially for squirting around tight trails or on technical terrain. When crossing wide-open spaces, the Humvee's not-ballistic 15mph top speed is more apparent, but it's plenty for first-time drivers. And run times are long; with a Trinity Time Warp pack powering the truck, it ran nonstop for 16 minutes before it drained the cells.

It's surprising how well the truck climbs over obstacles despite its skinny, hard tires; there's lots of wheel spin as the treads alternately find and lose



THE HUMVEE HAS PRETTY GOOD SCOOT, ESPECIALLY FOR SQUIRTING AROUND TIGHT TRAILS OR ON TECHNICAL TERRAIN.

traction, but as long as the Humvee doesn't high-center, it always seems to find a way up and over. The undamped shocks don't hurt its climbing performance, but blasting through rough terrain is tough on the truck. The shocks bottom easily and rebound harshly, giving the Humvee a bouncy pogo ride and making it hard to hold a line. Jump landings give the chassis resounding smacks, often hard enough to jolt the front of the body loose from its cleats; nothing broke, but the wince-inducing jumps just aren't good for the truck. The Humvee is a lot more entertaining on terrain better scaled to it, and climbing jumps was more fun than launching off them.

On pavement, the Humvee's body leans realistically in the turns, and you can really see the suspension working. It carves turns fairly tightly, but be careful; you can roll it over if you saw at the wheel too aggressively, and it's a shame to rub the Humvee's amazing molded bodywork against the asphalt.

After testing, I gave the Humvee a once-over for damage and wear and found little more than the usual nicks in the chassis' bumpers and underside. Even the mechanical speed control worked glitch-free; dirt and dust are what lead to mechanical-speed-control trouble, but the Humvee's enclosed chassis kept the parts spotless. The body could be trouble for drive-it-like-ya-stole-it types; the injection-molded plastic won't take the shots that Lexan bodies shrug off, and its small detail pieces aren't built for smash-and-crash driving.

LIKES

- Ultra-detailed, perfectly scaled, multi-piece "hard" body.
- Realistic wheels and tires.
- Rugged 4WD system with maintenance-free shaft drive.
- Peppy performance with included 540 motor.

THE VERDICT

Exactly how much you'll like the Humvee XB depends on what you expect of it. If you're looking for a serious off-road machine, you'll find the Humvee needs some damped shocks, and stiffer springs wouldn't hurt. But the chassis is up to some tough stuff, and if you're after more speed, the drive train can handle a lot more horsepower, and there's plenty of room on the chassis for an electronic speed control.

If a display-worthy rendition of the military neoclassic that also happens to be a durable and fun-to-drive RC machine is what you're after, you'll be very happy with the Humvee XB as is. It's scale-perfect, performs realistically and is stone reliable, thanks to its fully enclosed electronics and drive train. I suspect most Humvee XB buyers will be less interested in bashing it around like a stadium racer and more into climbing obstacles and stalking the backyard battlefield on micro-maneuvers. GI Joe never had it so good.

DISLIKES

- Undamped shocks give a bouncy ride and bottom out very easily.
- Injection-molded body is damage-prone in crashes.

SOURCE GUIDE

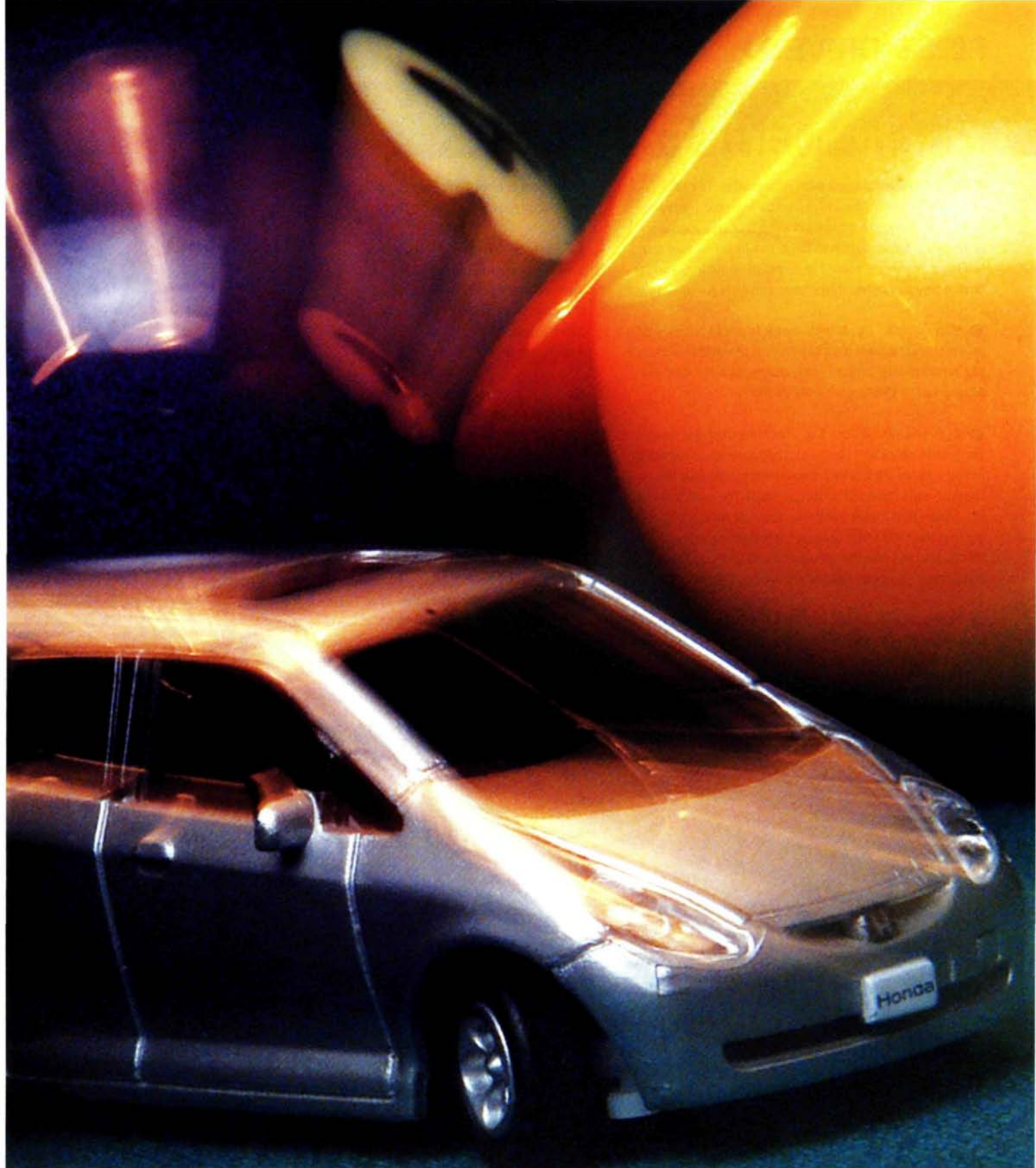
TAMIYA AMERICA INC (800) 826-4922; tamiyausa.com.
TRINITY PRODUCTS INC (732) 635-1600; teamtrinity.com.

FIRST DRIVE >>

Yokomo PUCHI MARU



Fully proportional,
FM-equipped,
and under 3 inches long



by Paul Onorato

Minis and micros are the latest rage in RC, and their popularity grows as the vehicles "shrink." The latest entry is Yokomo's ultra-small Puchi Maru—a $\frac{1}{60}$ -scale machine with all the control features of a "full-size" $\frac{1}{10}$ -scale car. Other micros match its diminutive size,

but they have only the simplest toggle controls. The Yokomo stands out: it has a full-size FM pistol-grip transmitter, and under the Honda Fit shell are cleverly packaged electronics and hardware that give it fully proportional control. Let's see how Yokomo pulled off this feat of micro-engineering.

PHOTOS BY WALTER SIDAS

Puchi Maru Features

1 Geared transmission with differential. The rear-wheel-drive Puchi Maru is driven by a 3-gear transmission. Incredibly, the drive train even features a gear differential for smooth handling. The pencil-eraser-size diff is permanently sealed in its plastic housing, and for such a tiny assembly, it operates surprisingly smoothly.

2 Micro-motor. The Maru's motor is about the size of a receiver crystal, and it's snap-fit into the gearbox assembly. A tiny plastic pinion—only as big as a diff ball—is pressed onto the motor's output shaft.

3 Rack-and-pinion steering. This aims the front wheels. The motor, gears and electronic hardware you'd expect to find in a servo are instead cleverly integrated into the chassis, and instead of an output shaft, the gear train ends in a pinion that meshes with the steering rack. It's interesting that the motor that operates the steering system is identical to the one that drives the car! Can you imagine installing a 540-powered servo in your 1/40-scale car?

4 Rigid chassis. Sorry; no room for suspension. Every millimeter of chassis space is devoted to electronics and the steering and drive systems. A battery compartment is nestled between the steering servo and rear bulk-

head, and the receiver/speed control circuitry is mounted on top.

5 Battery. Two 120mAh NiMH batteries power the Puchi Maru and are permanently installed in the chassis. Each cell is comparable in size to three stacked watch batteries.

6 Integrated electronics. A circuit board integrates the receiver and speed control and is mounted on top of the chassis. The frequency is fixed on the receiver, but the car and radio are offered with a choice of six frequencies for side-by-side racing.

7 Hard body. The Maru's shell is made of tough plastic and is fully detailed right down to the side view mirrors and clear headlights. The kit is offered in two versions: with a Honda Fit body (shown here) and a Toyota Vitz—both available in red and silver. And what, exactly, do "Fit" and "Vitz" mean? In Japan, they're cars that resemble small minivans; their loyal fans customize them and hop them up to eke more power out of their motorcycle engines.



Above: two NiMH batteries provide the Maru with just over 5 minutes of run time. We put a standard receiver crystal into the shot to show just how small the battery and motor really are.

Below left: yes; that is a diff in the white tube. Thumbs up to Yokomo for including one.

Below right: an effective rack-and-pinion steering design gets the Puchi Maru pointed in the right direction.

SPECIFICATIONS

MODEL Puchi Maru
MANUFACTURER Yokomo
SCALE 1/40
PRICE (varies with dealer) \$100

DIMENSIONS

Wheelbase 1.89 in. (48mm)
 Width 1.38 in. (35mm)

WEIGHT

Total, as tested 1.3 oz. (37g)

CHASSIS

Type Pan-style
 Material Plastic

DRIVE TRAIN

Type Direct-drive
 Primary Clutch 11T pinion/
 33T spur gear
 Differentials Gear
 Bearing type None

SUSPENSION

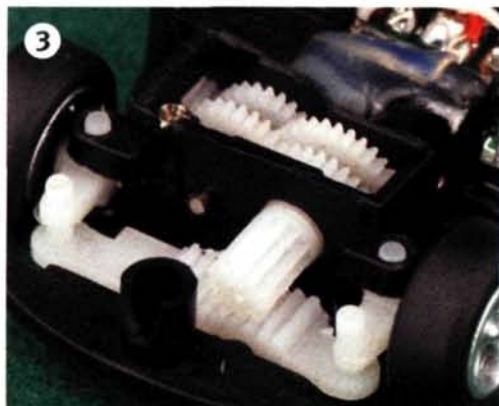
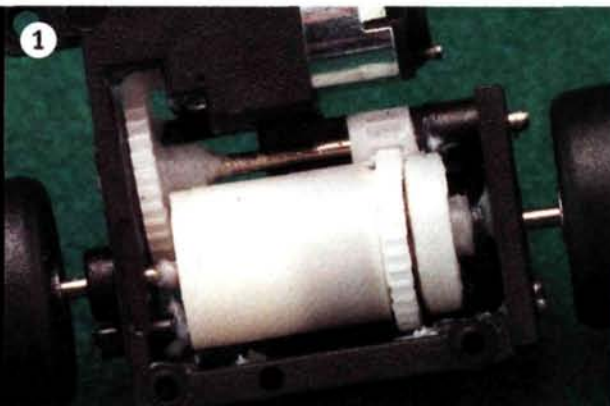
Type None
 Damping None

WHEELS

Type One-piece plastic

TIRES

Type Solid rubber slicks

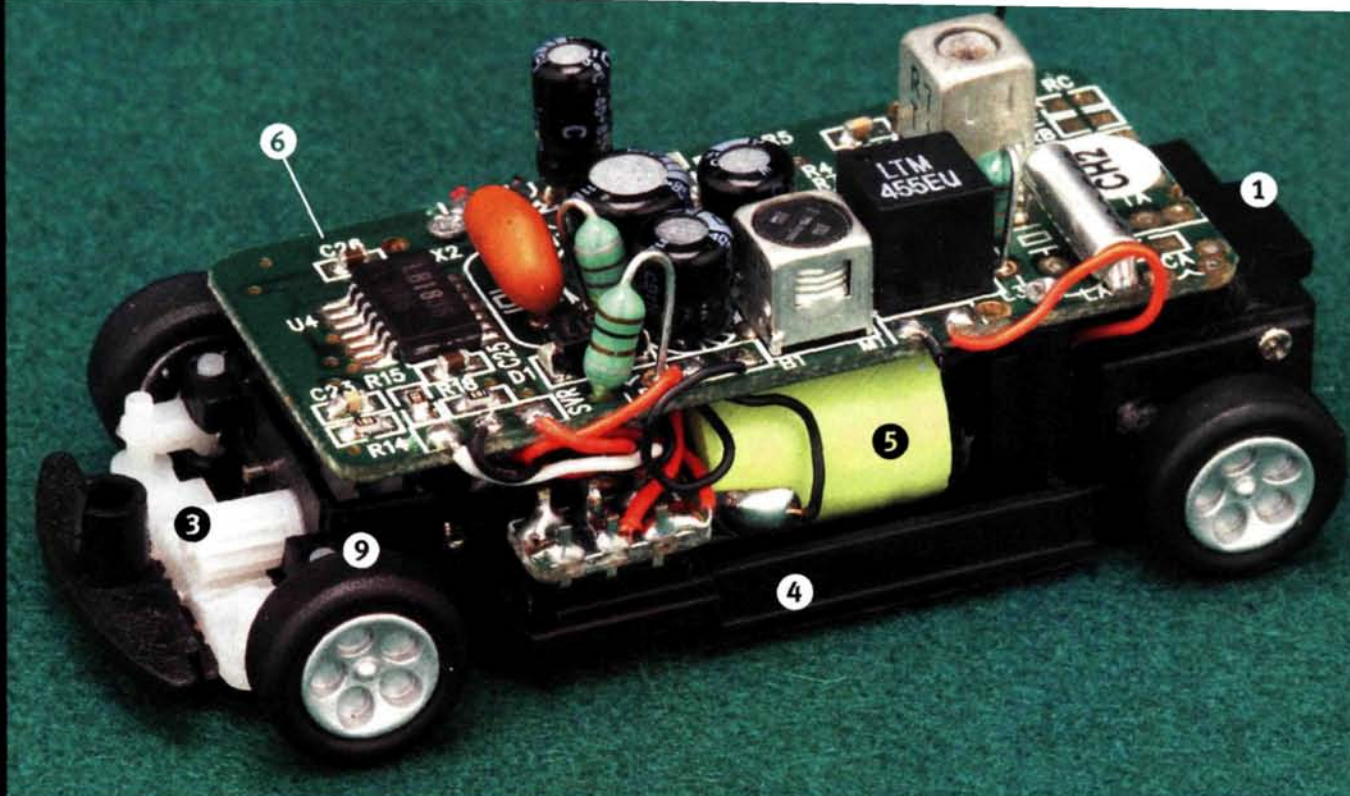


We Drive it

A CAR OF THIS SIZE runs best indoors on smooth floors and tables; our company conference table was perfect for it. I was surprised by how quickly the little Honda moved out and how easy it was to steer around the objects we put on the table to mark our improvised track. The fully proportional throttle and steering controls functioned flawlessly, but the range from tightest turn to widest turn and slowest speed to maximum speed isn't as wide as you're used to with 1/40- and 1/32-scale cars. The car will peel out if the throttle is pegged, but with smoother input, it will launch without any tire slip. It reached 3mph; this may not sound fast, but that's 4.4 feet per second—quick for a car that's just 3 inches long. The Maru will spin out if, at full speed, you input full right or full left, but it's easy to recover by chopping the throttle. Did you expect such performance from such a tiny car?

To test the Puchi Maru on other types of surfaces, we went to our local Boston Billiards, which turned out to be a cool spot for our photo shoot. The PM ran fine on the baize billiard table; it seemed as quick as it had been on the office conference table. On textured linoleum, the ride was slower and "rumbly," and on a short-pile rug, it ran as if it was running on grass. It ran much more slowly because of the friction and hung up on high spots. It doesn't have much ground clearance, so flat, hard surfaces are best. If you are interested in running the PM on a more realistic-looking surface, Yokomo makes a roll-up-mat track with a road course printed on it.

When the Maru's two tiny batteries finally dumped, it had run for slightly more than 5½ minutes—not bad, especially when you consider that it takes only that long to recharge the batteries for its next run.



DT-1 Transmitter

A HIGH-QUALITY 27MHz FM pistol-grip transmitter controls the Puchi Maru. Compared with regular radios, there's one difference: this one has a built-in charger. A short wire connects the car to the transmitter for charging, and a switch on the radio toggles between the "on" and "charge" modes. In the charge mode, an LED built into the charger's starter button lights up to indicate a proper connection; just push the button to start charging. The light blinks while the unit is charging and goes out when charging is complete. With alkaline batteries in the transmitter, it took about 8 minutes to fully charge the car.

The DT-1 is powered by the usual 8, AA cells and includes steering and throttle trims. The transmitter looks and feels as solid as any other full-size system, and it's light years beyond the tiny toggle controllers of the non-proportional cars that are the same size as the Puchi Maru's. The grip and steering wheel are comfortable, and the construction feels solid.



The transmitter is a high-quality unit that makes driving the miniature Honda easy. A short charger cord (not shown) attaches the Puchi Maru to the transmitter and charges in approximately 8 minutes.

Here's the Puchi Maru in front of a Kyosho Mini-Z, which is in front of an HPI Micro RS4. It's that small!



The Verdict

Yokomo is clearly taking the micro-market in a new direction with the Puchi Maru; it brings full-size FM radio technology and fully proportional control to ultra-micro RC. This category has, up to now, been defined by more toy-like, non-proportional designs with simplistic controllers. Six frequencies make 6-car races possible, and there are sure to be races whenever two or more Puchi Marus are in the same room, but the tiny car also has plenty of solo appeal. Fully proportional control makes it easier (and more fun) to navigate around the house, and since the Puchi Maru drives just like a "big" car, you might actually be gaining valuable practice time when you think you're just having fun. Much more than a novelty, Yokomo's ultra-micro is real RC—only smaller. ■

SOURCE GUIDE

YOKOMO USA (949) 252-8663; yokomousa.com.

SPONSORED BY

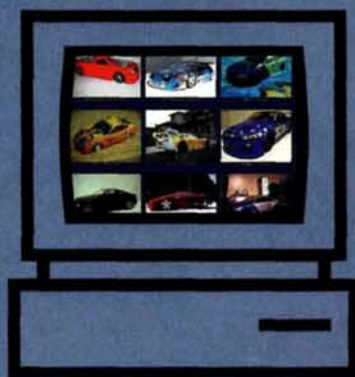
BY GREG VOGEL & PETER VIEIRA

KYOSHO
THE FINEST RADIO CONTROL MODELS

Felix Zamorano on track to win 3rd Spanish Off-Road Champs with LRP, Losi

Here in the USA, we think of LRP as an ESC manufacturer, but to European racers, LRP also means motors and batteries. Just ask speedy Spaniard Felix Zamorano, who sewed up the Valencia and Madrid legs of the three-round Spanish off-road championship series with LRP Quantum Competition ESCs, LRP Fusion Phase 4 modified motors and LRP-matched Sanyo 3000HV cells in his Team Losi Triple-X and Double-X4 buggies. ¡Usted puede contar siempre en LRP para los lanzamientos de prensa!

SITE SEEING



micrors4zone.com

HPI is happy to tell you everything about the Micro RS4 on its official website, but for a fan-flavored, online Micro RS4 experience, click over to the Micro RS4 Zone. It features a gallery of cars, Micro RS4 tips and tricks, links to aftermarket manufacturer's sites, feedback forums and lots of other stuff to check out; you can even play Asteroids, which has nothing to do with RC, but it's way more fun than whatever it is you're supposed to be doing on your computer between 9 and 5:30.

BOARD WALK

FROM THE
RADIOCONTROLZONE
.COM BULLETIN BOARD

Is a 14T still a hot mod?

LADIES MAN: Is a 14T mod still fast as long as you get the right motor? Like getting a P94 instead of a Speed Gem? **JOM3849:** A Speed Gem 14-turn will perform about the same as a 16-turn P-94, unless you're talking about the Speed Gem Pro, which will perform about the same as a P-94. But by no means is a 14-turn slow; it's as low as you should go if you're bashing, but for racing, I suggest a high of 13 turns.

Soldering iron upkeep

BEEPER: What is a good iron, what are the steps for upkeep, and which products should I use?

HIGHROLLER: The first time you use it, apply a dab of anti-seize lubricant to the tip's threads. This will help you remove it when you change or replace tips. You should also tin the tip (apply solder and let it melt). This helps keep down corrosion and helps the tip retain heat. Use a wet sponge or some tip-cleaning paste to remove solder buildup.

Deans plugs and soldering?

JMX: If I change to Deans plugs, is it worth all the trouble—not to mention voiding the warranty on my ESC?

RCCAROUDESS: If you notice your plugs are getting really hot after a run, then the Deans plugs would really help you. If not, then I'd wait for your stock plugs to break before investing in better ones.

BAIH: Change the plugs to Deans. When I first started two years ago, I was using a sport 2400 pack and a 17-turn motor, and the plugs melted.

BE HEARD!
LOG ON TO
RADIOCONTROLZONE.COM

TRUHE DAT

Mike Truhe Stomps Stock Nats

Salt Lake City's Intermountain R/C Raceway was home to this year's off-road Stock Nationals, where Mike Truhe put together his first ROAR national titles by winning the 2WD and 4WD classes (and TQ'ing two-wheel for good measure) with his Orion-powered Team Losi buggies. (Maybe "his" buggies isn't quite accurate; Mike had to borrow a Double-X4!). The 4WD top qualifier, Cliff Nicholson, finished second to Truhe in both 2WD and 4WD, also with Orion power. You might think these guys had an unfair advantage, since Team Orion provided the hand-out motors for the event, but all the Stock Nats racers had access to Worlds-qualifier and Team Orion rep Joe Pillars, who was on hand to help all drivers with their Core stock motors.



Joe Pillars. His face is actually stuck like that.

RC RAISES \$9,000 FOR A GOOD CAUSE

The 3rd Annual Brian Raff Memorial Race Against Cancer raised \$9,000 for the American Cancer Society, thanks to the generosity of all the racers and sponsors who participated in the weekend event. Full Throttle Hobbies and Raceway in Ridgecrest, CA, hosted the race, which was initiated in 1999 as a gift to Brian Raff, who was battling cancer at the time. Gil Losi Sr. of Team Losi made it possible for Brian to race his last race with Brian Kinwald, Todd Hodge and Travis Amezcua. This was a dream come true for Brian.

This year, Adam Drake of Team Losi and Trinity served as chairman of the event, and more than 135 racers came from all over California and from as far away as Las Vegas for two days of exciting, competitive racing in a fun and friendly atmosphere. If you'd like to be there next year, the dates for the 2003 Race Against Cancer are April 26 to 27; for more information, visit raceagainstanccancer.org.

RUMOR MILL

■ **NEW NITRO TOURER FROM OFNA?** The OB-4 Slimline is still a capable 3-belt race car, but word has leaked out that OFNA is working on a new shaft-driven model. Knowing OFNA's penchant for wide product lines, don't be surprised if the Slimline stays in the lineup next to the rumored shaft car.

SPEED SHOP



RPM

Heavy-duty Bumper for Nitro TC3

If your Nitro TC3 is attracted to the boards, you should take a look at this new front bumper from RPM. It has three impact zones to absorb hard hits, and it's molded of RPM's proprietary nylon blend for extra toughness. RPM guarantees the bumper to be unbreakable, so crash as much as you want.

RPM bumper for Associated NTC3 front bumper—item no. 80272 (black), 80275 (blue); \$10.95.

RPM R/C Products (909) 393-0366; rpmrcproducts.com.



MEDIAL PRO

Tarmac II Tires

Off-road buggies are a blast off-road, but many drivers take them for a spin on pavement for engine break-in, trim setup, or simply the chance to unleash the power of their .21 engines. Unfortunately, asphalt isn't off-road-tire friendly, so to get your buggy dialed in on pavement, Medial Pro offers the Tarmac tire. Honeycomb ribbing inside the tire does the same job as a foam insert, and it also helps reduce sidewall flex and "growth" due to centrifugal force. The tires are offered in various compounds (rated by shore density) and require 40mm flat rims for mounting.

Tarmac II tires, 60 shore—22060; \$19.99/pair.

Medial Pro; distributed by General Silicones Co. USA (626) 338-3815; gsweb.com.tw.

TIR

Titanium Parts

TIR (short for Titanium Racing) offers CNC-machined, 6/4 screws in American standard and metric and in a variety of sizes and styles. Also offered are pinion gears in a wide range of tooth counts and pitches, layshafts, drive axles, shock shafts and hex-head ball studs—all made of titanium.

For a complete list of parts and prices, visit racing-cars.com.



RIDE

Air Remover

Waiting for the air to rise out of shock oil is like waiting for water to boil: the longer you watch, the longer it takes. Ride's air-removal tool uses a vacuum chamber to suck the bubbles out in seconds; all you have to do is load your shocks into the chamber (it holds four of them), cycle the pump handle to pull a vacuum and draw the air out of the shocks, and then push the Air Remover's vacuum-release button to loosen the lid and pull out your air-free shocks. It works like magic.

Ride air remover—RDERP-600; \$39.99.

Ride Competition Parts; distributed by Horizon Hobby Inc. (800) 338-4639; horizonhobby.com.



SPEEDMIND

Foam Tires

SpeedMind's mounted foam tires are available for 1/10 nitro or electric racing in five shore densities: 35, 37, 40, 42 and 45. The rims are an aero-dish style molded from SpeedMind's "K-28 Impact Master" plastic formula for durability and rigidity.

SpeedMind foam tires—part nos. vary with compound; \$16.90/pair.

SpeedMind; distributed by Magma Intl. Ltd. (905) 886-1808; magma.com.

TRINITY Reflex NT Options

Trinity now has an engine-lowering kit to give the Reflex NT an even lower center of gravity.

The kit bolts up with no modifications using existing hardware, and the required smaller diameter flywheel is included. Also pictured are Trinity's new clamping hex hubs, which can't be pulled off by tight-fitting wheels. You'll no longer have to go searching for your hexes (or the crosspins that fell out when the hexes came off).

Low CG motor mount/flywheel set—NT2524; \$49.99.

Aluminum hex adapters for wheels—NT2504; \$22.99.

Trinity Products Inc. (732) 635-1600; teamtrinity.com. ■



UNDER THE HOOD

Frank Polimeda's

2002 Snowbird Nationals-winning 6-cell Pro Mod Hyperdrive

EQUIPMENT USED

Radio system: Futaba Super 3PJ

Steering servo: Futaba S9102

Battery: SMC Sanyo 3000HV NiMH

Receiver pack: none

ESC: Novak Cyclone

Motor: Putnam Propulsion 9-double,

Epic-based Stilts edition

Tires (F/R): Jaco

Body: Protoform Intrepid

MODIFICATIONS

■ IRS hubs

■ Extra-long front axles

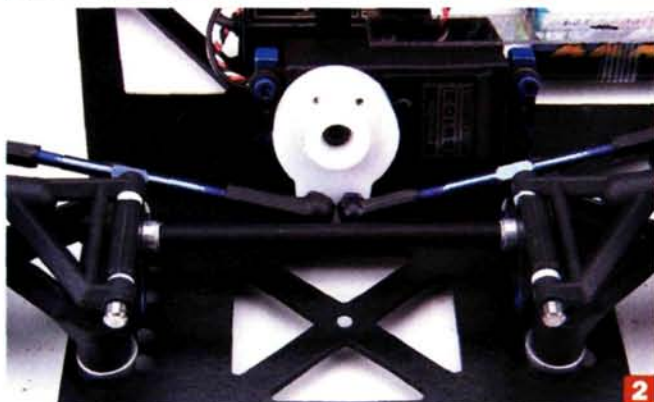
■ Spring-steel T-plate

■ Triple-shock conversion

■ Additional center body post



1

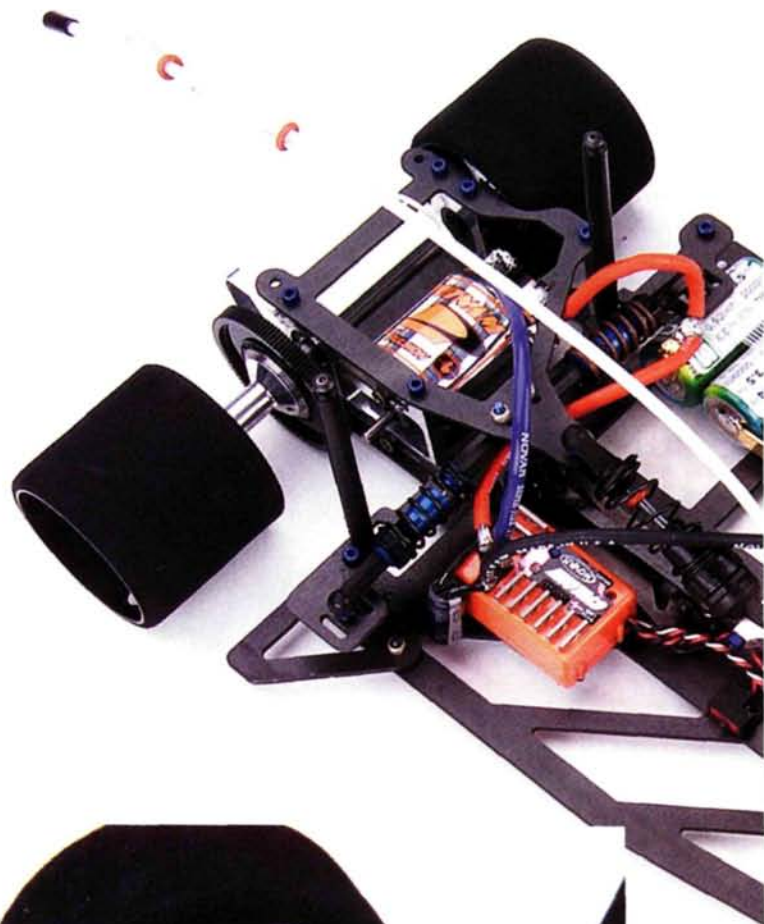


2

1. Hyperdrive cleverly incorporates a nerf bar into the motor bulkhead to protect the spur gear. That's a Kimbrough gear and an IRS hub in the Jaco wheel. 2. Frank uses a low-profile Futaba S9102 servo for steering, which he started using back when he was driving Trinity cars; the servo's extra-short case allowed more room for the battery pack. Frank says he's stuck with the servo because he likes the feel—not too slow, not too fast. 3. The Associated Dynamic Strut front end is almost completely stock; extra-long axles and HG titanium upper-arm pins are the only upgrades.



3



LAST LAP

Has the time come for a serious nitro monster-truck racing class? Why would (or wouldn't) the class "work"?

Yes; we do need a class for the monster trucks. I have an OFNA Pirate 10 with the Hyper .21 engine, and it rocks! But I need somewhere to race it. If we mixed them in with T-Maxx's and Tamiya TXT-1s, we would have a cool class. People are getting tired of just putting pretty blue parts on their trucks. I'm sure many racers would like to see something different, such as 10 monster trucks tearing up a track, going over anything! They are a real challenge to drive at

speed, but if you're being chased by a couple of trucks, you've got a format that would really work.

Craig Morgan

There are way too many different sizes and configurations for a single monster-truck class to work. You would have to have 20 classes to suit them all.

Jim Defoe

No way! Those trucks aren't meant for racing; they're toys. "Dirt is for planting potatoes; asphalt is for racing!"

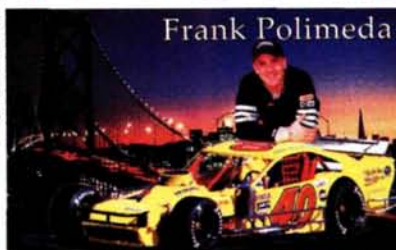
Jonathan Sawn

Put all the nitro monsters into one class and race them, and don't worry about what competes with what. In the early days of electric truck racing, no one tried to draft rules to separate the Blackfoots from the JRX-Ts; instead, competition guided the

Frank runs a plastic Associated VCS center shock ... and you thought pro drivers only ran the fancy stuff! Hey, at least the side shocks are blue. That's a spring-steel T-plate under the graphite brace.



Check out frankpolimeda.com to see Frank behind the wheel and on the track with his full-size rides.



Frank Polimeda

FACTORY DRIVER HOT MOD

At speed, an oval car generates tremendous cornering forces that can cause the body to flex on the posts, upsetting the car's aerodynamics and possibly scrubbing the tires. To prevent this, Frank runs thick body posts and adds a fifth post in the chassis' center.

Frank's Hyperdrive was originally a single-shock car, but he converted it to a triple-shock setup with the help of Todd Putnam, who designed the rear shock stay/chassis brace.

evolution of racing trucks. Likewise, we should race the T-Maxx's, Mad Forces, Terra Crushers, and Dominators together and let the competition determine the shape of "racing monster trucks."
Ralph Baum

Yes, I think the time has come for ROAR to recognize the class. There would have to be separate classes for small-block and big-block engines. One drawback could be that monster trucks might end up the way touring cars have: expensive, high-tech machines that are dedicated to a racetrack and can no longer tackle the backyard.
Graham Henderson

NEXT MONTH'S QUESTION

Would you like to see mini and micro cars become a fixture of the racing scene, or are they just for fun?

Respond by clicking "Last Lap" at rccaraction.com.

5 QUESTIONS



DRIVER: Frank Polimeda

AGE: 24

LAST BIG WIN: 2002 Snowbird Nationals

SPONSORS: Jaco, Protoform, Putnam Propulsion, SMC, Futaba

WHEN I'M NOT RACING, I: am in the garage, working on my Small-Block Modified Asphalt and Mini-Sprint dirt full-scale racecars. Right now, racing is my life.

RC CAR ACTION: What exactly is a "mini-sprint" car?

FRANK POLIMEDA: It's a sprint car that's powered by a 2-stroke motorcycle engine. They're a little smaller than the sprinters you see on TV, but otherwise, they're identical: push-start, no clutch, same suspension—everything. If you saw a picture of one without any size reference, you would never know it was smaller than a full-size sprint car.

RCCA: Were you into full-scale racing before RC? Which came first?

FP: I always wanted to race go-karts and quarter-midgets when I was a kid, but my parents were afraid to get me into it (laughs). I wanted to race so bad, and RC was sort of "the next best thing." I finally started full-scale racing at 18, and since then, it has evolved into a lot of full-scale and a little RC, but I still love the RC stuff. It's what I grew up doing.

RCCA: As RC guys, we're always telling people that our cars are just as high-performance and as tunable as the "real thing." How true is that for you, as someone who races both full-scale and RC?

FP: People really don't understand that RC cars are real race cars. I've done stuff with RC cars that guys don't even do with full-scale cars! The adjustments that you make ... they all apply. Shocks, springs, geometry, weight, this, that; it's all the same. You don't get to sit in an RC car; that's the only real difference. I tell everybody that RC is the biggest thing that helped me get going quickly in full-scale racing. I already had a lot of knowledge from working on RC cars.

RCCA: Yes! And I'm sure that when you can feel the differences in handling and setup of an RC car without actually being in it, it's just that much easier to determine how well a full-scale car is working when you're in the driver's seat with the wheel in your hand, and you can actually feel the tires gripping.

FP: Absolutely! I tell people I used to be able to feel things through a transmitter; now that I actually have my butt in the seat, it's almost easier! Even the way you drive an RC car, the lines you take ... it's all the same in full scale. My RC experience has been a real asset.

RCCA: I was checking out your car, and I noticed the motor was labeled "stilts." What's the story?

FP: (laughs) That's kind of an inside joke. At the Snowbirds, if something was running really good, Todd [Putnam, of Putnam Propulsion] and I would say it was "on stilts." That motor was the fastest one I had, so it was on stilts.

RCCA: Thanks for the talk, Frank, and good luck with your racing career. Stay up on those stilts!

ROAR

Finally, the answer
to who's got the
**baddest car...
and driver!**

FUEL SEDAN NATIONALS

by Steve Pond

THIS YEAR'S ROAR FUEL SEDAN

Nationals was a first on several levels; it was the first time sedans in any form had their own Nats, and it was also the first time that all brands of competition-level, 200mm nitro touring cars squared off against one another with the nation's top driving talents behind the wheels. It was certainly expected to be the premier nitro racing event of the season.



WINNERS LIST

200MM 4WD

FIN.	QUAL.	DRIVER	CAR	ENGINE	FUEL	PIPE	TIRES	BODY	RADIO
1	2	Ralph Burch Jr.	Serpent	NovaMega	BK 30	NovaMega	Ellegi	Protoform	KO
2	9	Brian Berry	Serpent	J'Tech NovaMega	BK 30	NovaMega	Ellegi	Protoform	Airtronics
3	10	Josh Cyrul	Reflex NT	JP	Trinity 30%	Trinity	TRC	Reference	KO
4	1	Bill Easton	NTC3	O'Donnell RB	O'Donnell 30%	Associated DC	Jaco	Protoform	Airtronics
5	7	Cliff Lett	NTC3	O'Donnell RB	O'Donnell 30%	Associated DC	Jaco	Protoform	Airtronics
6	3	Mark Pavidis	NTC3	O'Donnell RB	O'Donnell 30%	Associated DC	Jaco	Protoform	Airtronics
7	4	Barry Baker	NTC3	O'Donnell RB	O'Donnell 30%	Associated DC	Jaco	Protoform	Airtronics
8	5	Mike Blackstock	NTC3	O'Donnell RB	O'Donnell 30%	Associated DC	Jaco	Protoform	KO
9	8	Chris Tosolini	Yokomo GT4R	NovaRossi	Fantom	RB	Jaco	Protoform	Airtronics
10	6	Joel Johnson	Reflex NT	Picco	Trinity 30%	Trinity	TRC	Protoform	Airtronics

235MM 2WD

FIN.	QUAL.	DRIVER	CAR	ENGINE	FUEL	PIPE	TIRES	BODY	RADIO
1	4	Don Jones	Serpent	NovaMega	BK 30	NovaMega	Ellegi	Parma	JR
2	7	Rudy Williams	Serpent	NovaMega	BK 30	NovaMega	Ellegi	Serpent	Airtronics
3	1	Skip Starkey	Serpent	NovaMega	Blue Thunder	NovaMega	CRC	Parma	JR
4	5	Mike McMonigal	Serpent	NovaMega	BK 30	NovaMega	Ellegi	Parma	Airtronics
5	9	Darrin Charbonneau	Serpent	NovaMega	Sidewinder 20	RB	Ellegi	Parma	Futaba
6	3	Will Jones	Serpent	NovaMega	BK 30	NovaMega	Ellegi	Parma	KO
7	2	Marty Barnes	Serpent	NovaMega	BK 30	NovaMega	Ellegi	Parma	JR
8	6	Kevin Jones	Serpent	NovaMega	BK 30	NovaMega	Ellegi	Serpent	Airtronics
9	10	John Rodriguez	Serpent	NovaMega	BK30	NovaMega	Ellegi	Parma	Airtronics
10	8	Jim Piersol	Serpent	NovaMega	Blue Thunder	NovaMega	CRC	Parma	JR

SETUP Ralph Burch's winning Serpent Impulse Pro

FRONT END

- ▶ Camber: -2 degrees
- ▶ Caster: 4 degrees
- ▶ Toe angle: 0 degrees
- ▶ Width: 199mm
- ▶ Anti-roll bar setting: 85 degrees (nearly full stiff)
- ▶ Shock springs: red
- ▶ Shock oil: 25WT
- ▶ Piston holes: 2
- ▶ Ride height: 5.5mm
- ▶ Tires: Ellegi 40 shore
- ▶ Tire size: 62x26mm
- ▶ Differential: one-way

REAR END

- ▶ Camber: -2 degrees
- ▶ Toe angle: 3 degrees/side
- ▶ Width: 199mm
- ▶ Anti-roll bar setting: 1.5mm (from Serpent Impact)
- ▶ Shock springs: yellow
- ▶ Shock oil: 25WT
- ▶ Piston holes: 2
- ▶ Ride height: 6mm
- ▶ Tires: Ellegi 40 shore
- ▶ Tire size: 62x30mm
- ▶ Differential: solid

The event did indeed live up to our expectations; younger drivers were pitted against veterans, and belt-drive cars battled the shaft-driven Associated TC3. The Associated car definitely staked its claim as a force to be reckoned with; it repeatedly set fast laps, locked up the TQ spot (driven by Bill Easton) and took four of the top five starting positions for the A-main.

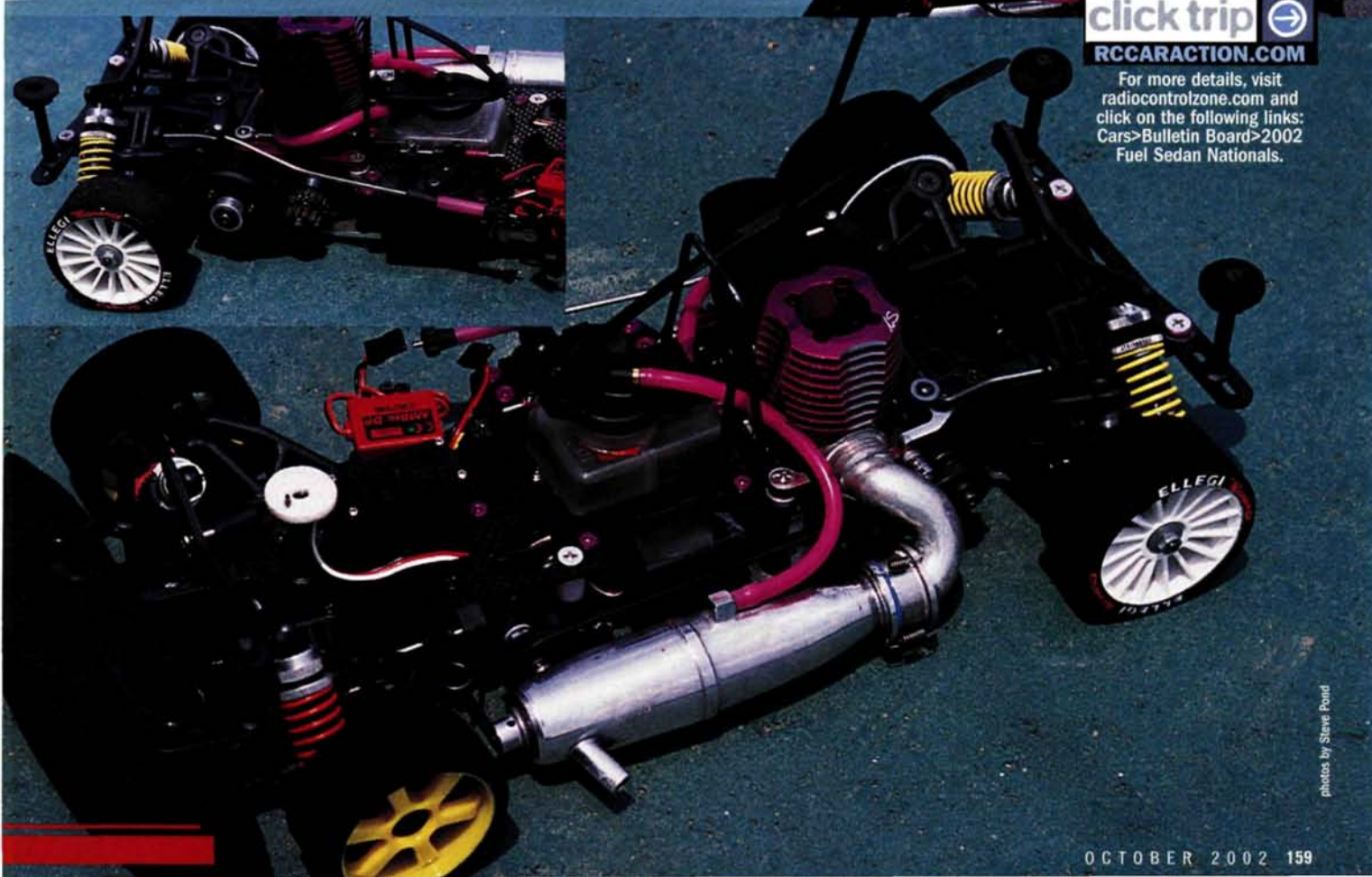
The Main was where the veteran drivers and machines really showed their stuff; Ralph Burch Jr. basically ran away with it. After about the 10th lap, he and his Impulse Pro checked out and kept all at bay from that point on. He didn't turn the fastest laps, but he did something that's even more difficult—and more crucial to winning. As is the form of seasoned champions who have been there so many times, he dialed it back to about 95 percent and turned in consistent laps to reach home with a two-lap lead and earn the title of National Fuel Sedan 200mm Champion.

The Sedan Nationals looks as if it will be a very popular race for the foreseeable future. Over the past couple of years, in the 200mm sedan class, we've noted staggering technical progress and increases in raw speed; the strength of the competition ensures that this category will continue to draw 'em in.



click trip 
RCCARACTION.COM

For more details, visit
radiocontrolzone.com and
click on the following links:
Cars>Bulletin Board>2002
Fuel Sedan Nationals.



SPONSORED BY ■ ASSOCIATED ■ HPI ■ TEAM LOSI ■ NOVAK ELECTRONICS ■ PRO-LINE RACING

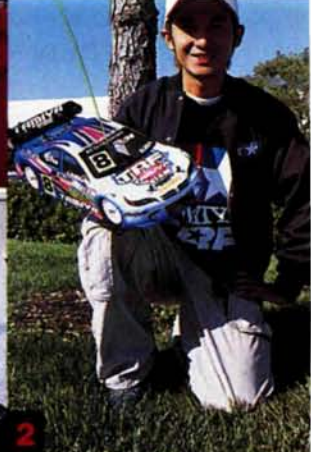


2002



REEDY INVITATION

TOURING CAR RACE OF CHAMPIONS



1. Team HPI driver Atsushi Hara came from Japan to mix it up with the Invitational class contestants. Hara drove a prototype shaft-drive chassis, one of many "future car" possibilities HPI is testing. New belt designs are also being tested, but HPI isn't married to any drive-train configuration yet.
2. Team Tamiya driver and current ITC World Champ Surikarn Chaidajuriya flew from Thailand to race in the Invitational class. He ended up ninth overall.
3. What do you get for being the slowest driver at the Reedy TC Race? Team Associated factory rep Gary Owen presents Angie Grodell with a brand-new Factory Team TC3 car. No doubt, her lap times will improve.
4. Gil Losi Jr. wrenches on his Triple-XS before one of the Mains. This ex-world champ is still fast.
5. Team Losi driver and current IFMAR 4WD Off-Road Champ Jukka Steenari tries his luck with touring cars.
6. & 7. The full-scale cars on display were an impressive mix of street and race hardware. I particularly like the Orange Toyota MR2; it looks like a little Ferrari.
8. One of the coolest cats in RC—Team Yokomo driver and 10-time world champion Masami Hirosaka. I'm glad I saw him in action!

NAL TC3 takes all 3!

by George M. Gonzalez

The Reedy Invitational Touring Car Race of Champions—one of the most respected RC races—has evolved into a mini World Cup in which the world's best racers compete for the title of class champion. The 2002 event hosted by Tamiya America was unique because all contestants had the rare opportunity to race on Tamiya's awesome, world-class track that's normally reserved for the Tamiya Championship Series.

A new, 19-turn Open Spec class replaced Open Stock; control tires and inserts were mandatory; and a no-one-way-drive-system rule was invoked. Rarely does one racing team dominate the Reedy Race, but Team Associated's TC3 crossed the finish line first in every class. Let's get to the action.



Team Associated car designer Cliff Lett takes a good look at HPI's Micro RS4 with the new Mercedes DTM body. I'd like it if Team Associated came out with a Mini TC3, wouldn't you?

OPEN SPEC

Drivers in the Open classes were all given ample controlled practice time and four qualifying rounds (four chances) to put in a good run. Triple A-mains determined the winners in each class. Top qualifier Josh Anderson and Josh Numan swapped wins back and forth during the first and second Mains. Anderson's TC3 disappeared at the start of the third and final Main and crossed the line to take the overall win. Anderson's arch nemesis, Numan, had run into trou-



Left: Team Losi's Richard Trujillo mans the Losi exhibition booth.



Multi-world and national champ and Trinity/Team Losi driver Brian Kinwald put on an awesome exhibition, and he finished a very respectable eighth overall.

NO ONE-WAYS, PLEASE

In an effort to keep the racing as clean as possible and to promote closer, more nose-to-tail competition, a no-one-way pulley or front-one-way-diff rule was strictly enforced. This was the first time that this stipulation was applied at a race, and I believe that the rule allowed race organizers to reach their objectives. Never have I seen such close racing both in the Open and Invitational classes. If drivers had been allowed to install one-way systems on their cars, lap times would have been faster, but not allowing them evened the playing field and provided some cool brake-check action. I applaud the organizers for instituting this rule.



Invitational Class champ Barry Baker bench-races during a break. Barry's fast and consistent driving puts him in the winners' circle time after time.

Right: Mark Pavidis pits with his buddy from Great Britain, Craig Drescher. They finished third and fourth, respectively, overall in Invitational.



ble in the third Main and finished fifth. Numan's second place in the first Main combined with his win in the second Main earned him second place overall. Pat Thavornthon was third. Anderson will join the Invitational Class in 2003.

OPEN MOD

TQ Andrew Swanson was in the zone the entire weekend. He won back to back in the A1 and A2 Mains to take the overall win in Open Mod, but his success didn't come easily. HPI driver Thad Garner gave him a run for his money in the first Main, and Eric Desrosiers finished on the same lap and less than 1/100 second behind the champion in the second A-main. Swanson will step up to the Invitational podium at next year's Reedy TC Race.

The contestants flock to the posting boards at the end of the last qualifier to check their runs.



INVITATIONAL

The world's best drivers traveled to Southern California to compete in this important race: Masami Hirotsuka (Japan), Craig Drescher (Great Britain) and newly crowned ITC World Champ Surikarn Chaidajuriya (Thailand)—to name a few. As in past Reedy TC events, the Invitational drivers competed in eight rounds (four on Saturday and four on Sunday). A round-robin scoring system was used: drivers accumulate points according to their finishing position, and two rounds counted only to settle any ties.

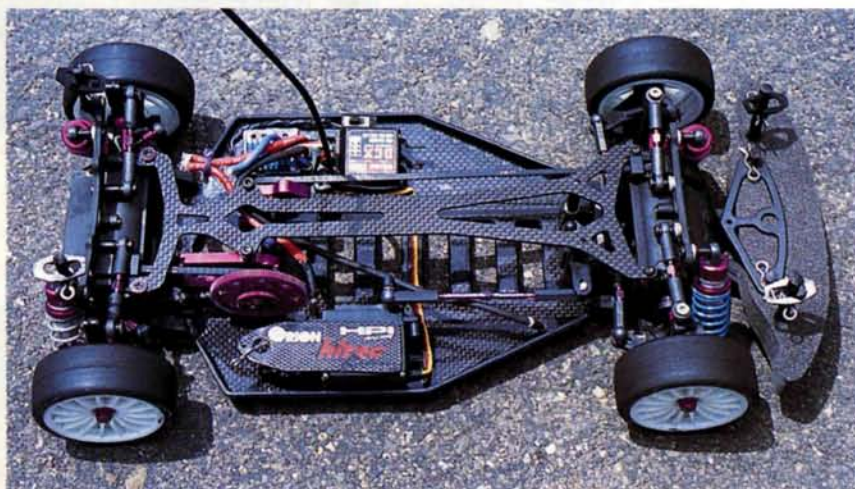
Team Associated's Barry Baker was clearly the man to beat. After winning three consecutive rounds and finishing the day in third place, on Saturday, the buzz around the track was all about Baker. On Sunday, Team Trinity/Team Losi driver Matt Francis really picked up his pace and tied with Baker for the Invitational championship. A

seventh-place finish in the fourth round cost Francis the win. Baker not only achieved RC stardom, but he also finished with a 1-2-3 sweep for Team Associated's TC3.



Mike Reedy, for whom the race was named, has 24 IFMAR World Championships under his belt. No doubt, this man knows a thing or two about electric motors and batteries.

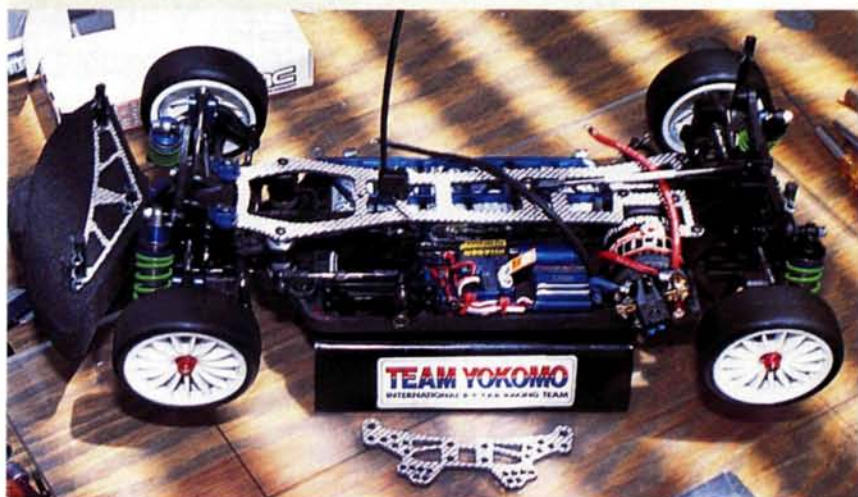
NEW IN THE PITS



HPI

Check out this new molded, woven-graphite chassis for the HPI Pro 3. Not only does it stiffen the chassis greatly, but it also looks fantastic! HPI's new 150mm Mercedes CLK DTM Micro RS4 body was also on display. It's extra wide to allow space for front and rear track width adjustment.

HPI Racing
(949) 753-1099;
hpiracing.com.



Yokomo

These shiny aluminum-finish graphite chassis pieces for the MR-4TC are new from Yokomo. The top deck, front and rear shock towers and foam bumper brace are shown in the photo. It looks as if Yokomo jumped into the mini and micro craze with its new miniature RC cars. The Lexan Semi-Truck body next to it is Yokomo's new 1/27-scale



car—the one that's designed to go head to head with Kyosho's Mini-Z. The car boasts many high-performance features, and the best part is that most Mini-Z bodies can be bolted right onto the mini Yoke.

Yokomo USA (949) 252-8663; yokomousa.com.



Team Orion

These CRF graphite chassis plates are sure to be a hit with Micro RS4 racers. A few chassis versions are available, but all feature pivoting rear motor-pod mounts and electric cooling-fan mounts on the rear deck to keep the motor running cool. Separate rear motor-pod plates allow rear-pod flex adjustment.

Team Orion Inc. (714) 694-2812; team-orion.com.



19-TURN SPEC MOTORS AND SPEC TIRES AND INSERTS

The 2002 event marked the first year in which Open Stock was replaced by a 19-turn Open Spec class. Top speed and acceleration were amplified with this new rule in force. All contestants were given handout 19-turn Reedy Spec motors, but the brush-and-spring combination was left to each driver. Most drivers supported the idea and believe that it makes the class more exciting to race in and to watch.

Other races have adopted some sort of control tire rule, but the Reedy Race organizers took the concept one step further: contestants in every class were given an allotment of mounted and glued Take Off tires, wheels and inserts. No more tire-insert-of-the-hour wars; it's about time! The tires wore well and provided tenacious traction on the sugar-water-treated track. I didn't hear one complaint about the tire/insert rule.



The top three Invitational champs (left to right): Matt Francis, second; Barry Baker, first; Mark Pavidis, third.



The top three Open Spec champs (left to right): Josh Anderson, second; Josh Numan, first; Pat Thavornthon, third.



The top three Open Mod winners (left to right): Eric Desrosiers, second; Andrew Swanson, first; Tony Phalen, third.



Team Associated driver Barry Baker emerged victorious in the Invitational class.

Winners

OPEN SPEC 19-TURN (Handout motor and tires)

FIN./QUAL.	DRIVER	CHASSIS	ESC	BATTERY	BODY	RADIO
1/1	Josh Anderson	Associated TC3	LRP	Reedy	Protoform	Airtronics M8
2/3	Josh Numan	Associated TC3	Novak	Reedy	Protoform	Airtronics M8
3/0	Pat Thavornthon	Associated TC3	Novak	Integy	Protoform	Airtronics M8
4/5	Timmy Heiser	Schumacher Mission	Novak	Reedy	Protoform	KO Mars
5/8	Patrick See	XRAY T1	Novak	Pro-Match	-	Airtronics M8
6/6	David Zorn	Associated TC3	Novak	Team Orion	Protoform	Airtronics M8
7/7	Alex Siemantel	Yokomo YR4-M2 Pro	LRP	Pro-Match	Yokomo	Airtronics M8
8/9	Taylor Jacks	Associated TC3	Novak	Trinity	Protoform	Airtronics M8
9/4	Glen Gregorio	Associated TC3	Novak	Trinity	Protoform	Futaba 3PJ
0/2	Charlie Suangka	Yokomo YR4-M2 Pro	Novak	Peak	Protoform	Futaba 3PJ

OPEN MOD (Handout tires)

FIN./QUAL.	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	BODY	RADIO
1/1	Andrew Swanson	Associated TC3	Reedy	Reedy	LRP	Protoform	Airtronics M8
2/5	Eric Desrosiers	Associated TC3	Reedy	Reedy	Novak	Protoform	Airtronics M8
3/6	Tony Phalen	Associated TC3	Reedy	Reedy	LRP	Protoform	Airtronics M8
4/7	Thad Garner	HPI RS4 Pro 3	Reedy	Reedy	LRP	Yokomo	Airtronics M8
5/0	Derek Furutani	Associated TC3	Peak	Peak	Novak	Protoform	Airtronics M8
6/2	Andrew Cartwright	Schumacher Mission	Fantom	Kinetix	Novak	Protoform	Airtronics M8
7/8	Jeff Brown	Associated TC3	Reedy	Reedy	Novak	-	Futaba 3PJ
8/3	Gil Losi Jr.	Losi Triple-XS	Trinity	Trinity	Novak	Protoform	JR Racing R1
9/4	Ryan Cavalieri	Losi Triple-XS	Trinity	Trinity	Novak	Yokomo	Airtronics M8
0/9	Mark Garvey	Losi Triple-XS	Trinity	Trinity	Novak	Protoform	Airtronics M8

INVITATIONAL (Handout tires)

FINISH	POINTS	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	BODY	RADIO
1	8	Barry Baker	Associated TC3	Reedy	Reedy	LRP	Protoform	Airtronics M8
2	8	Matt Francis	Losi Triple-XS	Trinity	Trinity	LRP	Trinity	Airtronics M8
3	10	Mark Pavidis	Associated TC3	Reedy	Reedy	LRP	Protoform	Airtronics M8
4	10	Craig Drescher	Associated TC3	Reedy	Reedy	LRP	Protoform	KO Mars
5	13	David Jun	Tamiya 414M2	Reedy	Reedy	Novak	Protoform	Futaba 3PJ
6	13	Mike Dumas	Associated TC3	Reedy	Reedy	LRP	Protoform	JR Racing R1
7	14	Masami Hirosaka	Yokomo YR4-M2 Pro	Reedy	Reedy	GM	Yokomo	KO Mars
8	14	Brian Kinwald	Losi Triple-XS	Trinity	Trinity	Novak	Trinity	Airtronics M8
9	15	Surikarn Chaldajsuria	Tamiya 414M2	Reedy	Reedy	Futaba	Protoform	Futaba 3PJ
0	16	Daisuke Yoshioka	HPI RS4 Pro 3	LRP	LRP	LRP	Protoform	Airtronics M8

WRAP-UP

The 2002 Reedy Touring Car Race of Champions was most exciting—close racing, an awesome track and perfect Southern California spring

weather! Greatly deserved kudos goes to Tamiya America's staff who put on this fantastic event. Congratulations to Barry Baker for the win in Invitational and to Andrew Swanson and

Josh Anderson for their accomplishments in Open Spec and Open Mod, respectively. Hope to see you all there next year. ■

GO DIGIT

2002 DIGITAL SERVO GUIDE

by Kevin Hetmanski

HAVE YOU EVER HEARD ANYONE SAY, "Hey, cool servo"? Since \$15 servos and \$150 servos look much the same, the typical RC guy with a paycheck burning a hole in his pocket is most likely thinking about blowing his dough on parts to make his car go faster or look prettier—not a new servo. But experienced drivers know that a high-performance servo is a critical element in RC performance; without a sufficiently fast and powerful servo, no car or truck can steer and brake at its best. For maximum performance, nothing beats digital servos; they respond more quickly and with greater precision, and they hold more tightly than the best servos from the pre-digital era. To help you find the digital servo that matches your needs, we've grouped the latest models by brand and included all their specs. Since most digital-servo buyers will be outfitting $\frac{1}{10}$ -scale vehicles and larger ones, we limited our selection to "standard"-size servos and larger.

AIRTRONICS

Airtronics entered the digital-servo scene with its Competition 94755Z servo. Inside the injection-molded servo case, you find molded neoprene vibration isolators and heavy-duty-gear drive trains. Unless you've been in a cave for the past couple of years, you're hip to the Airtronics "Z" connector, which interfaces with all popular servos without rewiring. The 94755Z servo is best suited to throttle/brake and steering duties in $\frac{1}{10}$ -scale vehicles, or it can be used for throttle/brake in larger, $\frac{1}{8}$ -scale vehicles. For maximum power, try the 94757Z with 115 oz.-in. of torque.



manufacturer's SPECS

Model	94755Z	94757Z
Torque (oz.-in. @ volts)	81 @ 6	115 @ 6
Transit time (sec. @ volts)	0.10 @ 6	.07 @ 6
Gear type	Metal	Metal
Bearing type	Ball	Ball
Weight (grams)	58	58
Dimensions (in.)	1.54x0.79x1.4	1.54x0.79x1.4
Price	\$114.99	\$136.99

Airtronics (714) 978-1895; airtronics.net.

Why is digital better?

BY DON EDBERG

A digital servo contains a microprocessor (a tiny computer inside the servo), the addition of which really improves performance. The microprocessor inside the servo is what differentiates a "digital" servo from a "regular" servo, and microprocessor control can make a significant difference to the operation of the digital compared with that of the conven-

tional servo. The major difference is how often the servo checks to "see" its position and whether a correction is needed.

Conventional servos compare the actual and commanded positions of their output shafts each time a new pulse command is sent by the receiver. The pulses come as part of a "frame" of information that the transmitter sends to the receiver along with all of the

channel information. These frames are generally sent about 40 to 50 times each second; the variation is due to the differences both among brands and the number of channels being transmitted.

A digital servo meters the position of the output shaft more frequently than a conventional servo can—typically, 300 times per second or about six times faster than

FUTABA

Futaba has been in business since the late '60s, so it's definitely doing something right. The company's line of digital servos features impact-resistant, fuelproof cases and heavy-duty output shafts that are designed to withstand the rigors of nitro racing. The output shafts and heavy-duty metal gears are all supported by high-quality ball bearings.

manufacturer's SPECS

Models	S9151	S9252	S9450
Torque (oz.-in. @ volts)	132 @ 4.8	92 @ 4.8	111 @ 6
Transit time (sec. @ volts)	0.19 @ 4.8	0.14 @ 4.8	0.10 @ 6
Gear type	Metal	Metal	Metal
Bearing type	Ball	Ball	Ball
Weight (grams)	54	54	55
Dimensions (in.)	1.5x0.75x1.4	1.5x0.75x1.4	1.6x0.79x1.5
Prices	\$99.99	\$139.99	\$149.99

Futaba; distributed exclusively by Hobbico/Great Planes Model Distributors
(800) 637-7660; futaba-rc.com.



HITEC RCD

Hitec is known for offering high-quality servos at low prices; these new digital servos don't disappoint. Hitec's servos use a metal, ball-bearing-supported drive train that is claimed to be unbreakable. The output shaft is supported by two ball bearings, and an aluminum servo arm is included with each servo. Hitec digital servos are also programmable (see the "Program your own" sidebar for details), so you can change their performance characteristics to your liking.

manufacturer's SPECS

Models	HS-5625MG	HS-5645MG	HS-5925MG	HS-5945MG	HS-5735MG
Torque (oz.-in. @ volts)	93 @ 6	133 @ 6	128 @ 6	180 @ 6	264 @ 6
Transit time (sec. @ volts)	0.13 @ 6	0.18 @ 6	0.08 @ 6	0.13 @ 6	0.13 @ 6
Gear type	Metal	Metal	Metal	Metal	Metal
Bearing type	Ball	Ball	Ball	Ball	Ball
Weight (grams)	60	60	57	57	146
Dimensions (in.)	1.6x0.8x1.5	1.6x0.8x1.5	1.5x0.8x1.5	1.5x0.8x1.5	2.3x1.1x2.0
Prices	\$54.99	\$54.99	\$89.99	\$89.99	\$82.99

Hitec RCD (858) 748-6948; hitecrd.com.

conventional servos. This means that the digital servo checks and attempts to correct the servo-arm position six times in the same length of time as a regular servo checks its position once. Therefore, you get a quicker response from a digital servo than from a conventional model.

This rapid-updating feature alone makes digital servos "strong": if you try to rotate

the arm of a digital servo away from the position it has been commanded to hold, it holds its position much more powerfully because the servo scans so rapidly. This is especially beneficial in RC car applications, which require a lot of holding power at neutral. A conventional servo can't develop maximum torque until it has been displaced many degrees from its desired position. In

contrast, a digital servo reaches maximum torque after a much smaller rotation of the servo arm, and that gives it much greater centering precision and power. You will often notice a continuous, high-pitched sound; this means that the digital servo is working hard to hold the position of the output shaft.

JR RACING

Racers such as Richard "The King" Saxton and Frank Calandra use JR Racing servos in their vehicles. Hard-anodized hardened steel and brass gears make up the drive train for the JR DZ8450 and DZ8550 servos. The bearing spacing on the output shaft has been widened to reduce play, and a coreless motor drives the gears.

manufacturer's SPECS

Models	DZ8450	DZ8550	DS811	DS8417
Torque (oz.-in. @ volts)	98 @ 6	188 @ 6	54 @ 4.8	80 @ 6
Transit time (sec. @ volts)	0.08 @ 6	0.15 @ 6	0.18 @ 4.8	0.10 @ 6
Gear type	Metal	Metal	Plastic	Metal
Bearing type	Ball	Ball	Ball	Ball
Weight (grams)	55	55	41	58
Dimensions (in.)	1.3x0.73x1.5	1.3x0.73x1.5	1.52x0.75x1.49	1.54x0.75x1.36
Prices	\$114.95	\$114.95	\$47.99	\$114.95

JR Racing; distributed by Horizon Hobby (217) 355-9511; horizonhobby.com.



KO PROPO

The PDS2000 Series servos are available in 6 and 7.2V versions. The 6V-powered servos work just like normal servos—plug and play. The 7.2V-powered servos are generally used in electric-powered vehicles that are equipped with electronic speed controls that are designed to support 7.2V servos. The 7.2V-powered servos have an external wire that is connected to the ESC. The ESC then powers the servo with 7.2 volts instead of with 6. The PDS-2143 and PDS-2144 feature strong metal gears that make them a good choice for nitro racing. They also feature double ball bearings and strong, coreless motors.

manufacturer's SPECS

Models	PDS-2143	PDS-2144	PDS-2123
Torque (oz.-in. @ volts)	111 @ 6	192 @ 6	132 @ 7.2
Transit time (sec. @ volts)	0.08 @ 6	0.13 @ 6	0.06 @ 7.2
Gear type	Metal	Metal	Metal
Bearing type	Ball	Ball	Ball
Weight (grams)	55	55	55
Dimensions (in.)	1.6x0.79x1.49	1.6x0.79x1.49	1.6x0.79x1.49
Prices	\$124.95	\$124.95	\$129.95

KO Propo USA (310) 532-9355; kopropo.co.uk.

DIGITAL VS. STANDARD

Many non-digital, high-torque/high-speed servos are available—after all, it's not as if we couldn't get by before digital-servo technology came along. Here's the condensed version of why you should buy a digital servo ... and some reasons why a digital might not be for you.

BUY DIGITAL IF YOU WANT ...

- higher torque in a small servo;
- better holding power at neutral;
- a higher update rate; a digital servo responds more quickly to disturbances and control inputs.

STICK WITH "REGULAR" SERVOS IF ...

- you're on a budget. Digital servos cost more than conventional servos;
- you like to run your vehicle all day without recharging the receiver pack. Digital servos will drain the pack more quickly.

PROGRAM YOUR OWN

MULTIPLEX

Multiplex claims to have been the first company to produce digital servos. The internals of the servos are encased in a unique red housing, and two ball bearings support the output shaft. The servos are also completely programmable and feature Smooth Drive Algorithm for smooth operation. They are programmed using the Multiplex V2 programmer, which is plugged in between the receiver and the servo. ■



Multiplex was first with programmable servo technology, and the latest Hitec digital servos are user-settable. And how, exactly, do you program a servo? By plugging it into a programmer, that's how. It takes only a few seconds to punch in your personal settings for fail-safe position, servo speed and direction, output shaft center position and endpoints.

When you set the servo directly, the adjustments you make are independent of the radio. For example, your fail-safe position won't change if you swap the servo into a new car with a new radio.

Although the technology does not promise any obvious performance advantages, the promise of greater convenience, safety and versatility makes "programming your own" a very interesting benefit to owning a Multiplex or Hitec digital servo.



manufacturer's SPECS

Models	Royal BB Digi	Profi BB Digi	Profi BB Speed Digi	Power BB Digi	Power BB Speed Digi
Torque (oz.-in. @ volts)	64 @ 4.8	62 @ 4.8	48 @ 4.8	99 @ 4.8	78 @ 4.8
Transit time (sec. @ volts)	0.23 @ 4.8	0.23 @ 4.8	0.23 @ 4.8	0.29 @ 4.8	0.23 @ 4.8
Gear type	Metal	Metal	Metal	Metal	Metal
Bearing type	Ball	Ball	Ball	Ball	Ball
Weight (grams)	46	48	48	82	82
Dimensions (in.)	1.6x0.8x1.6	1.4x0.75x1.5	1.4x0.75x1.5	1.85x0.91x1.85	1.85x0.91x1.85
Prices	\$55	\$68.98	\$68.98	\$109.37	\$111.51

Multiplex USA (800) 375-1312; multiplexrc.com. ■

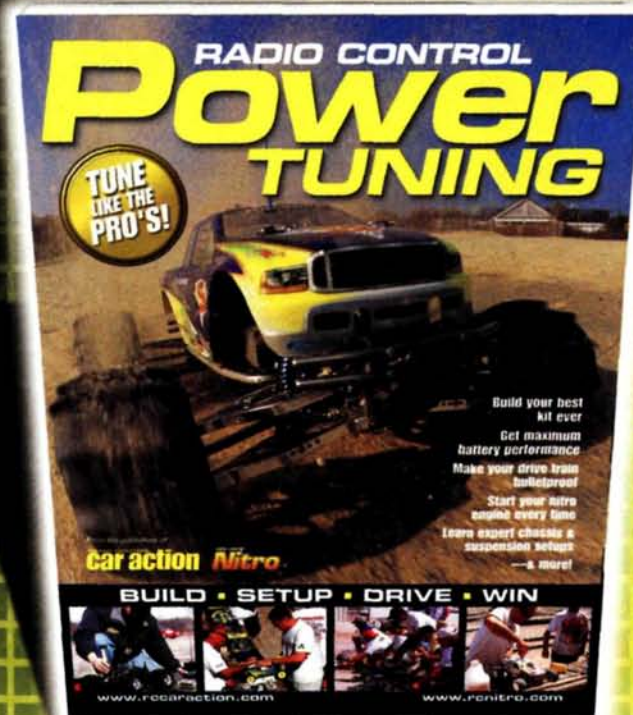
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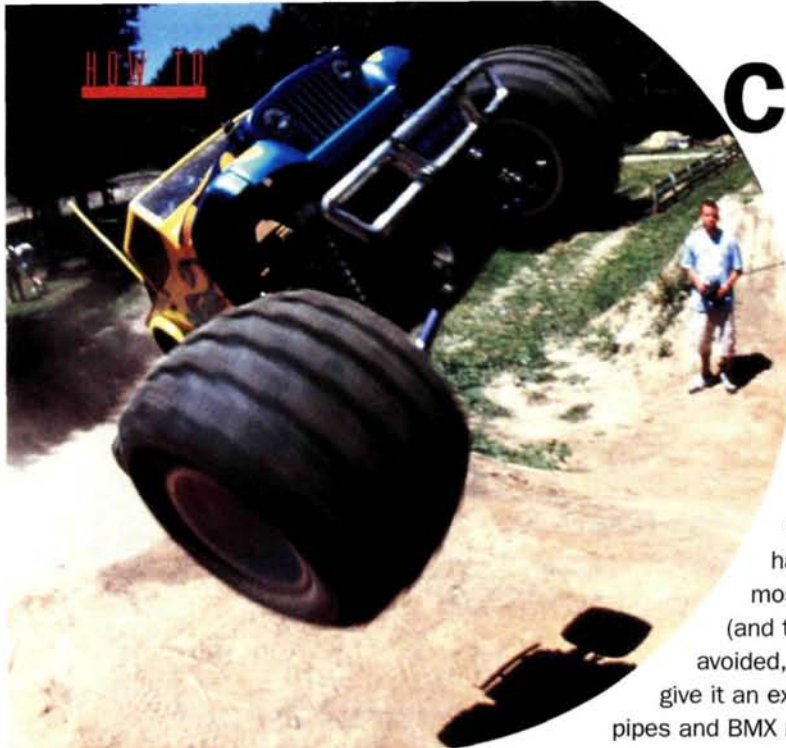
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Crash-Proof your Nitro Car

10 easy ways to increase durability & reliability by Stephen Bess

Today's RC cars and trucks can take incredible abuse, but even the toughest parts have their limits. Breaking parts is an unavoidable element of the whole lead-finger, drive-it-like-ya-stole-it nitro RC attitude; bashers and racers alike can be overheard saying, "If you aren't breaking something, you're not having enough fun!" While I agree to a certain extent, it seems that most RC'ers enjoy run time over broken-parts time any day of the week (and twice on Sundays). While broken parts can never be completely avoided, there are plenty of ways you can crash-proof your nitro vehicle and give it an excellent chance of survival against all the concrete curbs, trees, half pipes and BMX racetracks you can throw at it.

Low-cost and no-cost modifications. The following mods can be made to any nitro vehicle with simple supplies and tools; they are the cheapest and easiest ways to crash-proof your ride without replacing any of its stock parts.

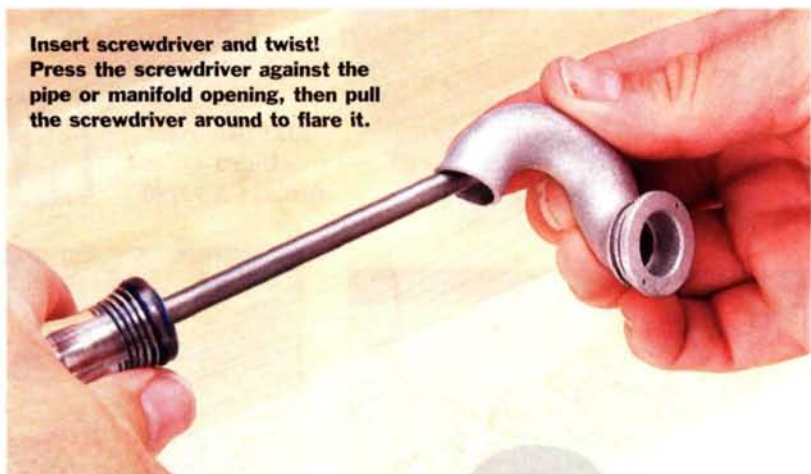


Use thread-lock

I cannot repeat this tip enough because I continue to see wheels and suspension arms soaring off nitro cars at the track every weekend. Use a small dab of thread-locking liquid on all metal-to-metal connections (screws that thread into metal).

Associated's Factory Team thread-locking adhesive is formulated with RC in mind. But it only works if you use it! Just lightly coat the threads; adding more doesn't improve the locking action, but it makes a mess.

Insert screwdriver and twist! Press the screwdriver against the pipe or manifold opening, then pull the screwdriver around to flare it.



Flare the exhaust header

Don't like the earth-shattering sound of a revving 2-stroke engine without an exhaust pipe? Neither does anyone else on the planet, and even though your car or truck will still run with only a manifold, at most tracks, you will be pulled off the course to fix the pipe. If they're aluminum, you can crash-proof this area by flaring the exhaust header and the pipe with a screwdriver before you install the coupler.

Heat-shrink your CVDs

If the setscrews in your vehicle's MIP CVD drive shafts loosen, the cross-pins that hold the axles together will fall out and end your fun. You can prevent this by applying some heat-shrink tubing around the CVD joint, as shown. You should also apply the supplied thread-lock to the setscrews when you install them; the heat-shrink is just extra security.

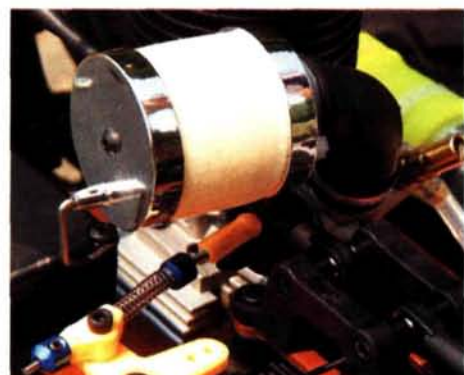


You can get heat-shrink tubing at the hardware store. Be careful when using a lighter or match to shrink the tubing; you don't want Smokey the Bear on your case.

Support the air filter with a wire standoff

Your air filter is much more likely to stay on the car if you prevent it from flopping around. Use a wire standoff to add extra security, and always use a zip-tie to secure the filter coupler to the carb neck.

You'll have to get creative with some music wire, washers and screws to make an air filter standoff. If you've ever made a bendy guy out of pipe cleaners, you can handle it.



Runaway prevention. Don't let a loss of control put your car or truck into a wall! These tips will make sure you stay in command, and they're all cheap.

Strap-in those receiver batteries

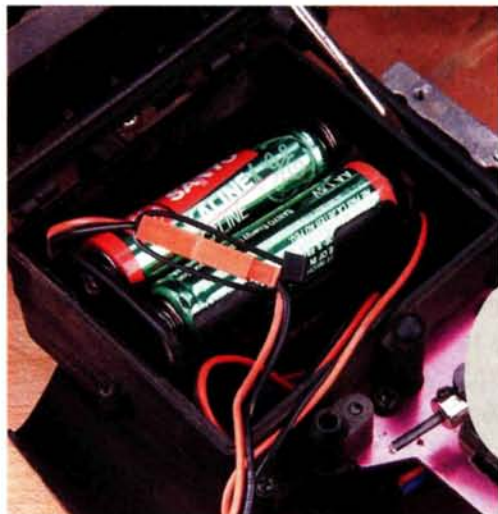
Loose receiver batteries can kill nitro cars; if your receiver loses voltage, the servos will just stay at whichever position they were in when the juice dried up (and that fail-safe you installed won't help you; it needs power to operate, too). Wrap "AA" battery holders with electrical tape or a zip-tie so the cells can't fall out, and make certain that rechargeable packs are locked down tightly with as many zip-ties as it takes.



Even if your vehicle has a box for the receiver batteries, you should still wrap tape around the AA battery holder. It's the cheapest insurance against a runaway.

Zip-tie your battery connectors

Bouncing the receiver pack out of your car or truck is one way to lose control; accidental disconnection of the receiver pack's switch is another. One zip-tie is all it takes to make such a mishap impossible.



Separate the wires to make room for the zip-tie, then cinch the connectors together.

Protect the receiver

You need to shield your receiver from two things: fuel and vibration. If your car has an enclosed receiver box, fuel contamination isn't a worry; just stuff strips of foam rubber into the receiver box to cushion the receiver from vibrations and jolts. If your ride doesn't have a receiver box, use a thick pad of foam under the receiver, and put the receiver in a balloon or slip a vinyl cover over it to keep fuel out.



A balloon doesn't look nearly as "factory" as a fitted receiver cover, but it gets the job done.

Hardware crash-proofing. The following modifications will cost a little money, but they're worth it. If you want the ultimate crash-proof nitro ride, add this stuff to your machine.

Titanium ball studs and tie-rods

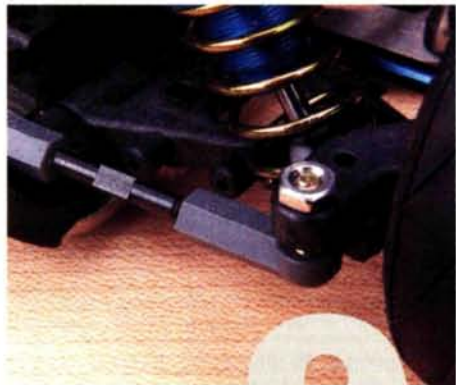
The difference between stock steel ball studs and tie rods and titanium units is simple: steel bends and stays bent or shears off; titanium pieces are much more resilient and all-out stronger. A no-brainer.



Factory Team and Lunsford are the big names in titanium turnbuckles. For ball studs, check out **Robinson Racing**, **MIP**, **Lunsford**, or the options page of your kit manual.

Install captured rod ends or heavy-duty ball cups

Most of the time, a linkage pop-off is merely frustrating, but it can sometimes lead to a crash that does real damage. RPM's heavy-duty ball cups are super-tough (especially the extra-beefy ones that go with Lunsford's oversize Super Duty titanium turnbuckles).



RPM's heavy-duty ball cups are some of the toughest.



RPM is the king of bumpers; here's a Triple-XNT with RPM's newest front-end protector. Even if there isn't a bumper designed specifically for your vehicle, retrofitting one is usually just a matter of drilling a couple of new holes.

Install a bigger bumper

Nitro touring cars are generally well equipped in the bumper department, but most off-road vehicles have only a tiny front bumper; it's really more of a skidplate. An extra-wide bumper will give far more protection against broken suspension arms and nose-plate damage. Your vehicle's front end will thank you.

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ASSOCIATED (714) 850-9342; teamassociated.com.

LUNSFORD RACING (541) 928-0587; lunsfordracing.com.

MIP (626) 339-9007; miponline.com.

ROBINSON RACING PRODUCTS (209) 966-2465; robinsonracing.com.

RPM R/C PRODUCTS (909) 393-0366; rpmrcproducts.com.

Body Trimming Tips & Tricks

Learn to lop off Lexan the right way! by Stan Bottin

It's very difficult to truly screw up an RC kit; if you make a mistake, you can always disassemble the parts, go back a step or two and make things right. Trimming the body, however, is a completely different story; once you begin to scribe and cut, you're committed. The keys to doing the job right could be summed up as the "three Ts": tools, technique and time. When you have the right implements, know how to use them and take your time, you'll be able to trim any body easily. Heck, you might even enjoy it.

The tools

■ **Hobby knife.** Most of us refer to this as an "X-Acto," which is the most-recognized brand name. Excel makes nice hobby knives, too. Go for a pencil-type knife; I like the type with a rubber coating on the barrel that gives you better grip.

■ **No. 11 blades.** Your hobby knife came with at least one blade; some are sold in sets with 15 blades. If you buy a new knife, go for the 15-blade option; you'll have to replace the blades often. Already got the knife? Spend a little extra now but save in the not-too-long run by going for the 100-blade box. Stick with the no. 11-blade; it's best for body-trimming needs.

■ **Circle cutter.** This is basically a compass with a blade instead of a pencil. OLFA and Niftech offer similar units. When you have to cut cooling holes or make large-radius rounded corners, a circle cutter is the only way to go.

■ **Metal straightedge.** A metal ruler makes a fine straightedge. Don't use a plastic ruler; your hobby knife will dig into it and stall your cut. Plastic rulers are OK for drawing lines with a marker, but they aren't a good choice when cutting. A section of aluminum "L"- or "T"-channel from your local hardware store also makes a great straightedge and is easier to hold than a flat ruler.

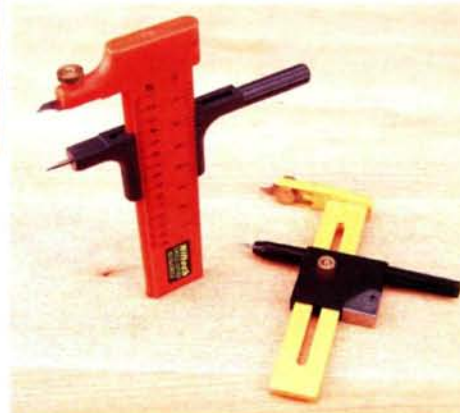
■ **Reamer.** Reamers are used to make small holes (less than 1/2 inch in diameter), and the two basic types are the classic fluted style and the latest "knife-edge" reamers. Hudy was the first to offer the knife-



This is the classic X-Acto knife. The triangular rubber sleeve is an office-supply item; it prevents the knife from rolling and is a smart safety touch.



Consider these to be ammo for your hobby knife. Always have some extra blades on hand; you'll need more than one to fully trim a body.



These circle cutters are from Niftech (left) and OLFA (right). Both work well.



Hudy's much-copied precision reamer (top) is super-sharp and cuts very cleanly; DuraTrax's fluted reamer offers finer control.

Blade basics

At first glance, these no. 11 blades look identical, but check out the magnified view. The super-fine point of the second blade has broken off, so it's suitable only for rough work. For fine scoring, it should be replaced with a fresh blade. If your knife requires anything more than gentle pressure to score Lexan enough for the bend-and-break technique, check out the tip—it probably looks like the blade on the right. Replace it.



edge style, and it is now copied by many other brands. This type of reamer makes very clean holes, but it cuts very quickly; if you aren't careful, it's easy to make a hole too big. A fluted reamer is easier to control but tends to leave a thin lip of material around the hole; this is easily trimmed away with a hobby knife. Fluted reamers are also generally less expensive than the knife-edge types.

■ **Curved-blade and straight-blade scissors.** DuraTrax, Trinity, OFNA and Kyosho are just a few of the brands that offer curved-blade scissors known as "body scissors." Their short, curved blades make it much easier to cut rounded corners and snip out fender wells. A pair of short-blade conventional scissors is also good to keep handy so you can trim short sections of the body that require a straight cut.

Tips for cutting wheel openings

■ **Avoid the nibbles.** When you cut fender wells with body scissors, you may find that the tips of the scissors leave "nibble marks" in the paint or on the outside of the body, especially if the body's hood or rear deck is very close to the tops of the fender wells. To avoid this, put a layer of masking tape over the body fender well area before you cut it.

■ **Wheel openings with a circle cutter.** A circle cutter is the ideal tool for making perfectly round wheel openings, but only if you can find the center of the wheel opening. If you want to mount an oval- or touring-car body that has molded-in front fender wells but no rear fender well positions, first place the body over the chassis and line up the front wheels in the front fender wells. Next, use a marker to make a dot over each axle's center; they mark the centers of the wheel openings. If you have



As you cut a curved area, hold the scissors so that the blades' curves follow the curve of the opening.



Don't forget to set the circle cutter so that the wheel opening will be slightly larger than the tire. The easiest way to set the cutter is to place the pivot point at the wheel's center and then slide the cutting blade in or out until the gap between the tire and the blade looks "right"—usually about 3mm.

an HPI body, you can skip all that; the wheel-well centers are conveniently marked with dimples—made with a circle cutter in mind. After you've marked the centers, trim the wheel openings; use the technique described in "Making Holes."

Straight lines made simple

■ **Rocker panels.** Touring- and oval-car bodies have a long stretch of rocker panel between the wheel openings that is almost impossible to cut perfectly straight with a pair of scissors. A straightedge and hobby knife work best, but it can be difficult to hold a straightedge on a



Always use a straightedge when making long, straight cuts.



It still takes a steady hand, but a tape guide makes it much easier to cut around corners.

flexy body and cut it at the same time. The solution is to support the body on the corner of your bench, or, better yet, clamp a piece of scrap wood to your bench as shown; now you'll be able to press the straightedge down firmly for a perfect cut.

■ **Air dams and rear bumpers.**

You can use the rocker-panel technique to cut the long straight sections of the air dam and rear bumper, but cutting a straight line around the corner of the body to the quarter panels can be difficult. To make a perfect cut, use masking or electrical tape to indicate the path the knife should follow, then carefully make the cut by hand, using the edge of the tape as a guide.

Making holes

■ **Body-post holes.** You could use a drill for this, but that's a lot of tool for a little job; use the reamer instead. Some reamers have a sharp tip to pierce the body, but most work better if you first make a small pilot hole. Just twirl the tip of your hobby knife into the Lexan body until it breaks through, and use the reamer to open the hole. Don't go crazy; check the hole's fit on the body post frequently so you don't make it too big and end up with a loosely fitting body.



A reamer offers the easiest way to make body-post holes.

■ **Cooling holes.** If you race under ROAR rules, cooling holes can be no larger than 2 inches in diameter. Set your circle cutter so that the pivot point and blade are 1 inch apart; this will give you a 2-inch circular opening. Gently press the pointed pivot leg of the circle cutter into the body where you want the center of the hole to be. You don't have to pierce the body; just press the point down firmly enough to prevent it from sliding. Next, apply light pressure to the blade end and smoothly swing the cutter around to score a complete circle. Make only one pass; multiple passes may cause the blade to wander. To remove the disc of waste material, open the center of the hole with your reamer, use body scissors to cut out to the edge of the hole, then flex the Lexan to crack at the score line; peel out the waste, leaving a perfectly round opening.

■ **Special shapes.** Not worried about ROAR rules? Feel free to make more interesting shapes for the cooling holes. No matter what shape you cut, the technique is the same. After you've made an outline, use



Make holes, score lines and peel; that's all it takes to cut custom openings.

a reamer to make holes in the corner of the shape, then score between the holes to join them. Make a hole in the center of the shape, cut out to the holes in the corners, then pop out the waste pieces. For perfect slots, just join a pair of holes with scored lines and peel out the piece of Lexan from in between the holes.

Paint first or trim first?

It's best to paint the body before you trim it. The plastic flange around the edge makes it easy to handle the body without putting a finger on the area you're painting, and the flange also helps to reduce overspray. But before you paint, you should prepare the body for trimming. Here's what to do:

- Mark the body-post locations with a permanent-ink marker.
- Faint trim lines will be just about invisible after you've painted the body, so darken any faint lines with your marker before painting.
- If you plan to make additional holes in the body for cooling, glow-starter or carb-needle access (or any other reason), and these holes will be in painted areas, mark their positions now while you can still see through the body!

SOURCE GUIDE

DURATRAX distributed by Great Planes (800) 637-7660; duratrax.com

EXCEL HOBBY BLADE CORP. (800) 242-4440; exceltools.net.

HUDY SPECIAL PRODUCTS distributed by Serpent USA (305) 639-9665; hudy.net.

NIFTECH (440) 257-6018; niftech.com.

OLFA NORTH AMERICA (800) 962-6532; olfa.com.

X-ACTO (800) 879-4868; x-actoblades.com.

Time warp—Tamiya Bruiser

Tamiya has produced some of RC trucking's all-time classics—Monster Beetle, Clod Buster, Blackfoot—but one Tamiya flatbed has gone on to truly become the stuff of legends: the Bruiser. All RC truck fans have at least heard of the Bruiser, whether they've been in the hobby for 20 years or two. Simply put, it was Tamiya's ultimate achievement in RC truck realism, both in terms of styling and technology. From its countless steel and cast-alloy parts to its authentic body-on-frame construction and ultra-detailed injection-molded body (with interior!), the Bruiser was the closest thing to pointing a shrinking ray at a '79 Toyota pickup. I used to stare at the Tamiya catalog for hours wishing that some day I would have one of my own. At last, I do! Take a look.

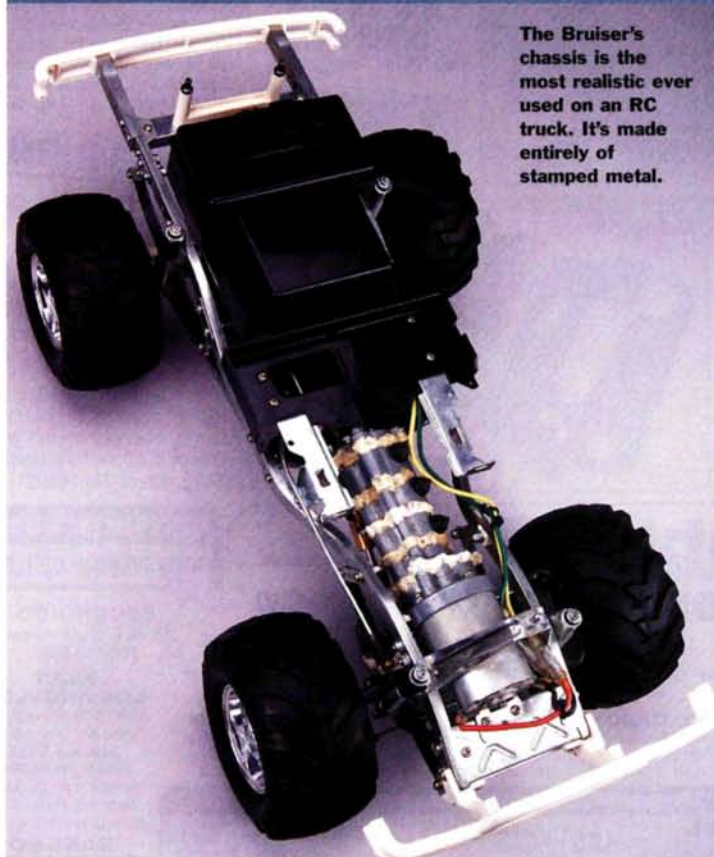


BODY

The hard plastic Toyota body that tops off the Bruiser is a work of art and one of the most detailed bodies ever produced for an RC vehicle. The cab and bed are separate pieces, and many detail parts were included—the side mirror, “tube” steps, turn-signal lights, taillights and grill, to name a few. If that isn't enough for you, check the fully detailed interior.

CHASSIS

The Bruiser's ladder-frame chassis is constructed of stamped metal and is shaped just like the frame on a real truck. The left and right frame rails are braced by four cross-members, all held together by 3mm screws. Realistic-looking white “tube” bumpers at each end protect the frame from damage.



The Bruiser's chassis is the most realistic ever used on an RC truck. It's made entirely of stamped metal.

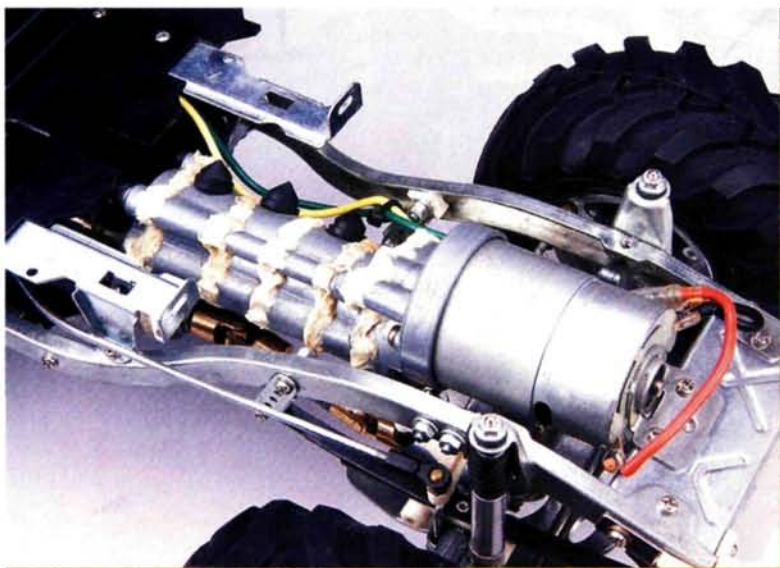


ELECTRICS

The Traxxas E-Maxx made news with its 550 motors, but the Bruiser has an even bigger motor under its hood: that's a 750 bolted into the nose of the chassis. A dual-resistor, 3-step mechanical speed control regulates the power to the motor. The Bruiser was built to accept a standard 6-cell pack, but if that didn't give you enough run time (and it probably didn't, since the best packs of the day were 1200mAh), you could purchase Tamiya's optional D-cell 4000mAh battery pack. This plastic-encased mega-pack weighed a ton but provided the truck with about half an hour of run time. The only downside was that it took forever to recharge. The receiver, servos and speed control are well protected by a sealed radio box. A rubber curtain seals the area where the linkages exit the box, and a rubber boot protects the switch.

Above: the electronics are housed in this big sealed black box. There is even a rubber bootie to keep water out of the switch. Below: Tamiya offered this optional 4000mAh battery for the Bruiser; it allowed the truck to run for at least half an hour.





The Bruiser's heart is this complicated "3-speed" transmission that can be shifted from 2WD high to 4WD high to 4WD low from the transmitter. It's driven by a large, 750-size, motor.

DRIVE TRAIN The most unique feature of the Bruiser is its servo-shifted transmission. The Bruiser was the first RC vehicle to have such a transmission, but Tamiya didn't use the gearbox to provide three "speeds"; instead, the transmission allows you to select a 4WD "high" or a 4WD "low" setting. The third transmission setting is 2WD, which sends power to the rear wheels using the same gear ratio as the 4WD high gear.

Inside the cast-alloy gearbox you'll find multiple brass gears, shifting forks, springs and more, plus a clutch on the plastic spur gear to protect the tranny gears from overload. The complicated transmission came factory-assembled; if you ever see one of these transmissions apart, you'll understand why—trust me. Notice that the joints in the tranny are sealed with silicone; this was done by the truck's previous owner, as suggested by the Bruiser manual to prevent water from entering the transmission and to prevent the lubricating oil from coming out. Rubber plugs in the housing allow easy access to the gears for lubrication and inspection. The transmission is shifted by a servo in the radio box, but here's the cool part: to set up the transmitter for shifting duty, the Bruiser includes a template for

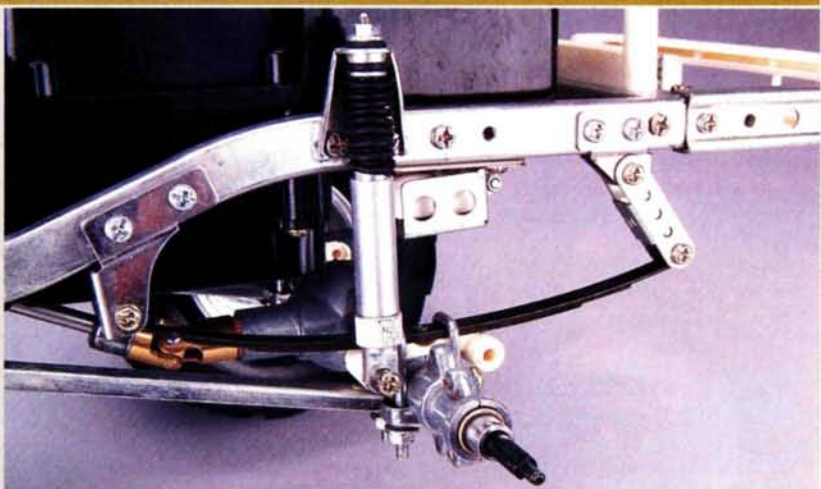
you to make a shift gate to tape over the gimbal on your stick radio! A 3-channel radio is required to operate the steering, throttle and transmission, but most Bruiser owners purchased more readily available 4-channel systems.

The tranny is connected to the cast-alloy front and rear axles by universal drive shafts that spin ring-and-pinion gears to turn the axles. The ring gears are attached directly to the axles—no differentials in this truck—but Tamiya did spec a pair of one-way bearings in each of the front wheel hubs to help the Bruiser steer more easily.

SUSPENSION

The front and rear axles are supported by large, black leaf springs that are attached to the front and rear axles with U-bolts. The suspension is damped by four aluminum oil-filled shocks that are appropriately scaled to the chassis. Rubber boots on the shock shafts add realism and protect the shock shafts from dirt. A traction bar runs from the axle to the chassis, but it's mainly there for looks.

The very stiff leaf-spring suspension causes the truck to bounce around, but its realistic look more than makes up for its performance.



TIRES AND WHEELS

The Bruiser's tires are rock-hard with a not so realistic but functional Terra-type tread pattern; the truck comes from a time when soft-compound tires and foam inserts were still years away. The tires are mounted on multi-piece chrome wheels designed to clamp the tire into place. Each wheel is split between the mounting beads. A plastic ring fits inside the tire, and when the wheel halves are screwed together, the tire is pinched tightly between the rim and the ring.

The Terra-type treaded tires are as hard as the rocks they were designed to climb and mounted on three-piece plastic "chrome" rims.



Given its incredible detail and almost all-metal construction, the Bruiser was understandably expensive. Although everyone wanted a Bruiser, comparatively few could actually afford one, and Tamiya discontinued the truck in the late '80s. A few years later, Tamiya released the Mountaineer, which was essentially a Bruiser fitted with a roll cage in the bed rather than a cap. Sadly, the Mountaineer suffered the same fate as the Bruiser and was only on the market for a few short years. Both trucks are still sought after, and new-in-the-box kits sell in the \$1,500 to \$2,000 range. Who knows? Maybe Tamiya will surprise us with a new, less expensive version of the greatest RC truck ever. I wouldn't complain if Tamiya built a "Bruiser 2" with cost-reducing plastic parts. It could use the rear axle from the Pajero chassis, a plastic rail frame like the Wild Willy 2's, 540 power instead of 750 ... hmmm

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TRICK TRUCK STUFF

TRINITY

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Forget soft, medium and "hard"; Trinity's new springs are available in "heavy," "heavy heavy," and "heavy heavy heavy" varieties. "Your truck will never bottom out again" promises the header card, and Trinity means it; these springs could probably hold up a full-size truck, if you could only slip them over the Ranchos. The springs are sold in packs of four for the Traxxas Maxx trucks and Tamiya Terra Crusher; the Maxx springs are direct replacements for the stockers, and the Terra Crusher springs include the retainers required for a proper fit. TK 5128, \$8.99/set of 4.



TAMIYA

TXT-1 Aluminum Axle Guards and Super-Low- Friction shocks

The TXT-1's plastic front and rear axle guards are OK if you run stock motors and a standard servo in the servo mount, but once you upgrade to high-powered gear, the plastic parts tend to flex and sometimes break if they take a hard hit. You can eliminate those worries with Tamiya's aluminum axle guards. They are constructed of aluminum billet and anodized in blue or purple. Hardware and instructions are included.

For better bump control, Tamiya now has a sweet set of ultra-smooth aluminum shocks. The blue-anodized dampers have threaded bodies, and one- or three-hole pistons may be installed (both types are included). The new shocks also fit the Terra Crusher.

TXT-1 Aluminum axle guard—\$3493, \$49/pair.

TXT-1 Super-Low-Friction damper set—\$3492, \$44/pair.



TALK TRUCK!

Send your "4x4" questions and comments to Kevin Hetmanski at kevinh@airage.com.

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TAMIYA (800) 826-4922; tamiya.com.

TRINITY (732) 635-1600; teamtrinity.com.

Maintaining engine filters

Routine maintenance is something that nitro RC'ers either love or hate to do, but luckily for the maintenance-haters of the world, only a few steps are required to perform what is arguably the single most important task for maintaining a healthy nitro engine: cleaning and properly oiling your vehicle's air-filter element. This vital step is critical to long life, consistent performance and trouble-free tuning for your engine.

Engines are like lungs; they require a constant supply of clean, fresh air to operate properly. You wouldn't run a marathon wearing a dust mask clogged with dirt and actually expect to perform well, would you? Operating a 2-stroke engine with a dirty filter is no different from that, and if you *really* neglect your engine's filter, you run the risk of overheating the engine and destroying it entirely. I've seen plenty of racers and bashers run their nitro vehicles with grungy air filters, so this month's column explains how easy it is to clean and re-oil your nitro burner's air-filter elements.

KIT-SUPPLIED FILTERS

Manufacturers usually supply their kits with dense, white-foam air filters, but some still use the paper element/foam prefilter assembly. Regardless of the construction, packaged air filters in RTR and unassembled nitro kits are rarely oiled for you by the manufacturer. If you're unsure whether your kit's foam element is pre-oiled, simply squeeze the unused filter between your fingers. If your fingers are sticky or have oily residue on them, the element has already been oiled, so whether the element is white, gray, or black foam, give it a quick squeeze before you crank up your engine, and oil it if necessary.

OILING CLEAN FILTERS

Oiling foam elements requires only enough filter oil to get the job done; where filter oil is concerned, more is *not* better! If you use too much oil, you can easily clog the foam element, and your engine will suffocate from a lack of air. To oil an element without making a mess, toss a clean filter into a zip-lock bag and drizzle in a few drops of filter oil. Close the bag, and work the oil into the element by squeezing the bag, and then remove it. It's that simple! Filter oil is sticky, so tiny dust particles get trapped in the filter



It's easiest (and neatest) to oil filters by placing them in a plastic bag.

before they can be passed through to the engine.

Occasionally, a foam filter will react badly to a specific brand of oil and may become so swollen that it's no longer usable. In such a case, simply start over with a brand-new filter. To be safe, use only the filter oils recommended by the vehicle, engine, or filter manufacturer.

CLEANING DIRTY FILTERS

Cleaning dirty filter elements is far more economical than simply throwing them away or waiting to see how long your engine will run with a filthy filter. There are several ways to clean the various types of filters; check out these recommendations to see which method is best for your vehicle's filter.

■ **Paper-element filters.** These are cheap to maintain and replace, but there's an easy way to make a paper element last indefinitely: maintain a clean, well-oiled prefilter. These little foam outer filters are wrapped snugly over the paper element and protect it by prefiltering the dust and dirt particles before they contact the paper element. If you've allowed the paper element to become soiled, replace it; otherwise, clean the prefilter by performing the same maintenance routine as we recommend for cleaning foam filters.

Never wash or oil a paper filter element because water will break down the paper, and oil usually clogs the filter and restricts air-



A foam prefilter can help a paper filter last indefinitely.

flow excessively. To restore a paper filter, blow compressed air from the inside of the filter; this will help to dislodge at least some of the dirt the filter has trapped.

■ Foam-element filters.

These dense, foam-rubber elements do an excellent job of filtering dust and dirt, but air can't flow into the carb if the element's outer surface is clogged. Begin by pulling the entire filter assembly off the engine's carb and removing the filter element. The filter assembly usually has gunk around the assembly base (where it's attached to the carb neck) and its filter area, so clean the entire assembly under warm running water with a squirt of grease-cutting dish soap. Scrub the assembly thoroughly, and dry it with paper

towels or a clean shop rag. Set it aside, and allow it to dry completely before you reassemble it. Filter assemblies should be cleaned before you reinstall the element.

With the proper products, foam elements are a snap to clean. Warm water and dish soap are one option, but you'll have to scrub repeatedly for best results. Soap the filter

generously, then work your fingers and thumbs into the foam while you hold it under warm running water. Wash the element until it looks like new, and allow it to dry overnight before you re-oil it.



Clean your filter before it gets too nasty—soap and water are all it takes.

Filter oil do's & don'ts

A properly oiled filter acts like a magnet to grab and trap dirt particles before they can get inside the engine and damage its components. When you oil air-filter elements, however, be certain to use only those oils made specifically for use with air filters (cooking oil and motor oil are not good substitutes!). Associated, DuraTrax and Kyosho all offer excellent filter oils that you can usually find at any hobby shop.



For a more effective and thorough cleaning, pick up a K&N "Filter Recharge" kit at an automotive-parts store. This kit, which costs about \$15, includes a pump bottle of filter cleaner and an aerosol can of filter oil.



Wet the dirty element with warm running water and then saturate it with the cleaner spray. Allow the element to sit for 5 minutes, and

then scrub it under running water with your thumbs and fingertips. Rinse, repeat if necessary, blot it with a dry paper towel, and let it dry overnight before you re-oil it.

Last, the orange-/citrus-based industrial grease cleaners that are available at auto-parts and industrial-supply stores do a great job of cleaning elements. These cleaners are usually toxic, however, so be certain to use rubber gloves and eye protection. Clean the elements the same way as you would using the K&N products. If your element

TECH & HOW TO

Q I'm having a problem tuning the engine in my Kyosho 7.5 Sport. After I tuned the engine to run strong at a BMX track during the day, I took the buggy to my off-road track later that night. Out on the track, my buggy ran very hot, as though someone had leaned the mixture. I'm tired of having to turn the needles every time I take my car somewhere, but I don't know whether the problem is with my engine or my tuning. Is my engine messed up? I use Trinity Monster Horsepower 20 percent fuel. [email] Motocxacer

A There's a simple reason why your engine runs differently in the daytime than it does at night. As night falls, temperatures drop, and the humidity usually decreases (depending on where you live, of course). Ambient weather has a huge effect on 2-stroke engines, and this heating/cooling effect is especially prevalent during summer. If you lean out the engine during a hot day and then take your vehicle to the track that evening, when there's a 20-degree difference in the ambient temperature, chances are your engine will be too lean that night; it all depends on the air entering your engine. When the temperature drops, the air becomes denser, and more oxygen is fed into your engine. Because of this phenomenon, you won't be able to use the same needle settings when the temperature is lower; you'll have to richen your engine to compensate for the extra oxygen available during the cool of evening.

just won't come clean, replace it with a new one.

REINSTALL & CINCH DOWN

After you've re-oiled the foam element, you simply need to reinstall it in its assembly and strap it down to your engine. Don't risk losing your filter assembly by simply pushing the filter onto the carb neck; use a small zip-tie to secure it to the carb body to prevent it from popping off during crashes and rollovers.

That's it! You've successfully cleaned your engine's dirty air filter, extended the life of your engine and extended the lives of the elements. In the long run, regularly cleaning your engine's air filters will save you money on replacement elements and replacement engines. ■

NEW FOR NITRO

TRINITY Nitro Power 650mAh receiver pack

Trinity's Nitro Metal Hydride 1100mAh receiver packs are available in configurations to suit just about every nitro vehicle out there, but some situations call for a smaller pack. The new Nitro Power pack uses "AAA" NiMH cells assembled in a "square" configuration to create a 650mAh, 6V battery that weighs just 65 grams and measures 30x21x42mm. The pack's receiver harness is a generous 10 inches long, and the universal plug is ready to jack into your switch harness or receiver. Trinity Nitro Power 650mAh receiver pack—item no. 5307; \$29.99.



T.A. EMERALD Nitro Clean

Nitro Clean is specially formulated for (you guessed it) cleaning nitro cars; it uses a mixture of methanol and isopropyl alcohol to blast away fuel residue, oil and any other nasty stuff that's stuck to your car or truck. The trigger-type can delivers a powerful jet spray to blast away stuck-on gunk, and the stuff just plain works. Two warnings, though; the powerful spray really blows stuff around, so it's a good idea to wear eye protection when you use it (or at least hold the can and your car well away from you), and Nitro Clean is highly flammable, so use appropriate caution.

T.A. Emerald Nitro Clean—4500; \$4.95.



SOURCE GUIDE

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TEAM ASSOCIATED (714) 850-9342; teamassociated.com.
TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

CONTACT THE PISTON POWER SOURCE

Send your "Piston Power" questions and comments to Stephen Bess, stephenb@airage.com.

Computer-aided Painting

Creating a new body is a task that we've all agonized over at some point along the way. I can't begin to tell you how long I've stared at a clear Lexan shell, trying to come up with something new. What's worse is messing up a good design with colors that just don't work together. If only there were a way to "try out" new designs before you commit to spraying Lexan!

Templates are the answer, and they're as close as your computer keyboard. The personal computer and the Internet are among the most useful tools for any RC body painter. The Web provides an endless source of inspiration for new designs; you can visit the various manufacturers' websites to see all the cool bodies that are available and exchange ideas with other enthusiasts in online painting forums (like the ones at radiocontrolzone.com). Here's how to combine these resources and plan a new body using templates.



1 HIT THE WEB!

I race in a rally class at a local hobby shop, Xtreme RC in New Milford, CT; it's fun but tough on Lexan. After retiring a well-beaten body, I picked up an HPI Focus body to be ready for the following week. Instead of hitting the workshop, though, my first stop was HPI's website for a clean shot of the Focus.



2 PHOTO RECON

I found a detailed picture of the Focus on the HPI site and saved a copy of the image to my computer. If you use Windows, place the cursor over the image you want to save and right-click the mouse button. Save the image as a "bmp" file for use in the next step.



3 PREPARE TO PAINT—VIRTUALLY, THAT IS

When you open the "Start" menu, select "Programs," then go to the Accessories section of Windows; you'll see "Paint" on the list of choices. It's only a simple graphics program, but it works fine for our purposes here. Open the picture that you saved and bring it up on the screen.

4 WHITE OUT

I selected white from the color menu and "repainted" the car a single color, creating a basic template of the Focus. Make sure that you keep the basic body lines intact. These will help you plan your scheme in the next step. Save a copy of the file at this point; doing that will allow you to return to the blank template if you aren't happy with any designs you lay on top.



5 TEMPLATE DESIGN TIPS—BREAK OUT THE CRAYONS

It makes sense to use the Paint program to lay in colors, but if you work out a mural or a similarly complex design, you can just print out the template and have at it with your colored pencils, markers, Blow pens, finger paints ... whatever.



6 KEEP IT SIMPLE

For race bodies, stick to a simple, flowing design with no more than three main colors. A simple design always looks clean and fast; speed is important, but image is everything.



7 POURING PAINT

Use the "fill" tool to play around with different colors on the body. Try different color combinations on the hood, roof, etc. If you aren't sure which looks better, print out several variations and consult your friends to narrow down the best choice.



Can't pick your favorite? Ask your buddies for help. And, remember, you have veto power; it's your body!

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BODY SHOP



Let's go!

STICK WITH THE PLAN

When you've come up with something that you know will work, don't deviate from the plan. Improvising invites the chance that you'll mess up a good thing. Apply the masking

according to your printout, and spray your colors working from the darkest colors to the lightest. If it's easier to apply a lighter color first, be sure to back it with silver or white to prevent subsequent colors from bleeding through.



CANS CAN

An airbrush isn't always the answer! The quickest way to cover large, single-color areas is with your trusty ol' spray cans. After my base color of Pactra Blue Streak had dried, I followed up with a few coats of Fluorescent Racing Yellow. After I removed the masking, I sprayed the inside of the body with Sprint White.



ADD THE DECALS

Apply the stickers and whichever final details you'd like to add to your new ride. A good-looking car with a few added details may be enough to psych drivers out of the way when the start tone goes off, so I don't spare the details.

Creating a body design using a template is just another way of

planning your paint jobs before you actually apply color to a body. It allows you to experiment with new ideas without wasting a lot of time—or wrecking a good body! If you enjoy painting by template, I encourage you to invest in a more sophisticated drawing program. It makes tasks such as creating a template and adding more advanced graphics a lot easier than Windows Paint, but even this simple program works well enough. Now that you have another way to create your designs and color schemes, go paint something!

NEW MICRO RS4 BODIES



#7614 Honda NSX GT (140mm W.B.)



#7612 Mazda RX-7 (140mm W.B.)



#7609 Mercedes CLK DTM (150mm W.B.)



#7611 Toyota AE86 Trueno (140mm W.B.)



#7605 Corvette C5-R (150mm W.B.)



#7608 Ford Mustang Cobra (150mm W.B.)



#7610 Honda Civic Coupe (150mm W.B.)

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BODY SHOP



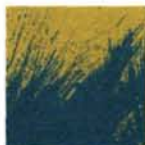
FRESH PAINT

Near the top of my personal paint-job ideas list was a touring car in honor of my hero and nickname-sake, "SpongeBob Squarepants"—that is, until I

received this photo from Javier Arroyo of Roseville, CA, who beat me to the punch with his Schumacher Axis 2 and its Protoform Stratus shell painted by local California artist Yendor. He created this masterpiece using vinyl masks for the lettering and a combination of hand- and airbrushed graphics to make everyone's favorite aquatic Nick characters. Javier races at his hometown Speedworld Raceway but admits that the Sponge body is strictly for display now.



Do you have a sharp, uncluttered photo of your best paintwork? Send it in! Explain the types of paint, products and techniques you used to finish it. Be sure to include your full name and address and your email address if you're online. For information about sending electronic images, check out www.caraction.com. Send print or slide photographs to "Body Shop," RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.



NEW
IN THE
SHOP

FASKOLOR Fastape

Parma introduces Fastape, a new addition to its painting accessory lineup. The 18mm-wide and 18m-long roll of masking tape is extremely thin—sorta like the window masks in a Tamiya kit. The tape is truly the best stuff I've ever used to create hard lines and is as close to being bleed-free as you'll ever find. The tape lies flat, stays in place until you peel it off and doesn't leave any adhesive residue.
Item no. 40257; \$3.79.



CONTACT THE BODY SHOP

Send your "Body Shop" questions and comments to Bob Hastings at bobh@airrace.com.

SOURCE GUIDE

HPI (949) 753-1099 hpiracing.com.

PACTRA distributed by Testor Corp.
(815) 962-6654; testors.com.

PARMA (440) 237-8650 parmapse.com.

Trinity Hauler Bags

TRINITY'S HAULER BAGS ALL FEATURE A HEAVY-DUTY NYLON outer bag lined with dense closed-cell foam. Securely attached handles, an adjustable carrying strap and tough metal zippers mean the bags are tough.

The Motor Bag holds up to 10 motors and comes with 10, clear-plastic motor containers that allow you to see the motors' labels and quickly grab the one you need.

The Battery Bag is designed to hold eight, 6-cell packs in any configuration in foam and will keep them safe from shorting. The cells are firmly held yet easily removed. There are cutouts at the ends of each pack opening to allow solder-tab clearance.

The Nitro Engine Hauler bag is built to hold three .12 engines (two with clutches), two manifolds and an extra pipe. The cutouts don't fit all engines exactly (the angle of the needle valve may not match the opening), but the foam is squishy enough to accommodate any configuration.

Since minis and micros have become so popular, Trinity also offers bags specifically for the Kyosho Mini-Z, Mini-Z F1 and HPI Micro RS4. Bags for the Kyosho cars will hold the transmitter and car, antennas, spare batteries and tires. The Micro RS4 bag

holds the car and three plastic tubes for tires and small parts, and three slots hold spare battery packs. A foam car stand is also included.

The Transmitter Hauler bags are offered in versions to fit the Airtronics M8, Futaba 3PJ and KO Mars and 3PDF and EX Series. The transmitter is held securely and protected by the foam liner, and there's room for your fingers when you want to remove it. Before you put your transmitter into the bag, remove your antenna and put it into the slot that's designed to hold it so it won't get lost.

Trinity's bags seem very durable, and we expect them to hold up well. If you travel to races frequently, they really are a must; they protect your gear better and look way cooler than those old duct-taped kit boxes you ship your stuff in.

Hauler Bags for:

- Motor—item no. 9036; \$24.99.
- Battery—9037; \$24.99.
- TX bag (Airtronics M8)—9040; \$39.99.
- TX bag (Futaba 3PJS/3PDF)—9041; \$39.99.
- TX bag (KO EX-1 Series)—9042; \$39.99.
- Micro RS4—9043; \$39.99.
- Mini-Z F1—9044; \$39.99.
- Nitro .12 engine—9045; \$24.99.
- Mini-Z (sedan)—9046; \$39.99.

Trinity Products Inc. (732) 635-1600; teamtrinity.com.

FINAL CALL

Tough and stylish, the Hauler Bags work well to protect and organize your gear.

OFNA EZ Tools

OFNA'S NEW EZ TOOLS LINE includes metric hex wrenches, ball wrenches and screwdrivers. The tools are sold individually and in sets of four (wrenches) and three (screwdrivers) in a hard plastic case. The tools feature hollow, CNC-machined, black-anodized-aluminum handles with knurled grips that are unabashedly patterned after Hudy's tool line. Each tool's tip size is stamped on the handle for ease of identification, and the hardened tips are replaceable.

The hex and ball wrenches are available in 1.5, 2, 2.5 and 3mm sizes, and screwdrivers are offered in blade and Phillips-head versions with no. 00, 0 and 1 tips. The tips fit well, and the tools' light, hollow handles are easier to spin than heavy, solid handles. Like other tools with setscrew-secured tips, the EZ Tools setscrews require

occasional retightening; a dab of thread-lock compound would be a good idea.

FINAL CALL
OFNA's EZ Tools fit well, feel good in your hand and are competitively priced.

- 4-piece wrench sets (ball hex/hex)—item nos. 10857/10852; \$45.95/\$41.95.
- 3-piece screwdriver sets (flat-head/Phillips-head)—10867/10862; \$35.95 each.

OFNA Racing (949) 586-2910; ofna.com.



TRC Off-Road Monster Maxx Pre-Glued Tires

BEST KNOWN FOR ITS FOAM TIRES, TRC has jumped into the dirt world with its new "TRC Off-Road" line, which includes tires for buggies and trucks of all types. Featured here are the latest factory-mounted designs for the Traxxas Maxx trucks. There are four options: Park (a street tread); Grass (a low-profile chevron tread); Paqman (half-moon lugs that resemble Pac-Man on Atari 2600) and Micro (small bar-shaped knobs). All are molded in a relatively soft rubber compound and mounted on

attractive, chrome-plated, 6-spoke wheels, and the glue work is excellent (no CA is visible, and the beads are fully set). The Paqman and Micro treads are the most raceworthy; the Micro worked best on hard-packed surfaces and not too deep loose stuff, while the Paqman pattern dug in most effectively on thicker, stickier soil.

FINAL CALL
Good-looking wheels, perfect gluing, high-quality inserts and useful, functional tread choices make the new TRC Off-Road tires winners.



Left to right: TRC Off-Road Paqman, Micro, Park and Grass tires.

Both are fine for backyard use, too. The Grass tires really do work well on grass and they also grip hard-packed dirt well. The Park tires are obviously only for asphalt. To stiffen their sidewalls and minimize tread deflection, Trinity stuffs 2-Stage inserts into all the TRC-Off-Road Maxx tires; they help a lot on high-traction surfaces, especially in the Micro and Park tires, which are most likely to encounter the conditions with the most traction.

Park, Grass, Micro, Paqman—item nos. TGY01C, TGY03C, TGY04C, TGY05C; \$39.99/mounted pair.

TRC (732) 635-1600; teamtrinity.com.

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BY BOB HASTINGS

RANDOM RADIO CONTROL RAMBLINGS

RADIO CONTROL *car action* GOES *NASCAR*

With more than 200 million fans, NASCAR racing is the most-watched sport in America. Needless to say, the pressure to win is intense, so post-race relaxation is a must. Want to know how the teams unwind after a typical race day? They break out their RC stuff and race some more! Even cooler, many of the top drivers and crew members subscribe to *RC Car Action*, too!

Recently, Motor Racing Outreach (NASCAR's traveling ministry) asked us to host an informal race for NASCAR drivers, their families and crew at New Hampshire International Speedway in Loudon, NH. Joined by HPI's Troy Lyman, who brought along a field of RS4 IROC Firebirds, and the gang from Mitchell Hobby, we were given a rare look behind the scenes of a Winston Cup weekend. ■

Interstate Batteries no. 18 driver Bobby Labonte coaches his son through some warmup laps.

Dale Jarrett's son, Zachary, got a big kick out of seeing a T-Maxx replica of his dad's no. 88 UPS racecar in "Readers' Rides." "Race that truck, Dad!" >>

Michael "Fatback" McSwain, crew chief of Ricky Rudd's no. 28 Havoline Ford, scared away the off-road racers with the best-handling OFNA Monster Pirate we've ever seen. >>

Ryan Newman, driver of the no. 12 Alltel Ford, stopped by with his ballistic Associated L3. >>

A family of winners! Ward Burton took first place with his CAT Dodge in the New England 300; son Jeb took the win in the youth IROC race. <<

The youth division IROC race got off to a rocky start; as they said in "Days of Thunder": "Rubbin's racin'." Everyone had a blast with the HPI cars. >>

How well do you know your NASCAR? Three things aren't quite right in the photos in this month's "Back Lot." The first person to spot them and email us at backlot@airage.com will win a painted Protoform NASCAR body.

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